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MEASURING LEADER-LEVEL ENGAGEMENT

MEASURING LEADER-LEVEL ENGAGEMENT: ADDRESSING THE GAP IN
EMPLOYEE ENGAGEMENT RESEARCH

A dissertation to be submitted in partial fulfillment of the
requirements for the degree of
Doctor of Education

By

COLLEEN MARIE HAYDEN
B.A., Wright State University, 2007
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2019
Wright State University

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2019

MEASURING LEADER-LEVEL ENGAGEMENT

WRIGHT STATE UNIVERSITY
GRADUATE SCHOOL

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I HEREBY RECOMMEND THAT THE DISSERTATION PREPARED UNDER MY SUPERVISION BY Colleen Marie Hayden ENTITLED Measuring leader-level engagement: Addressing the gap in employee engagement research BE ACCEPTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF Doctor of Education.

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ABSTRACT

Hayden, Colleen Marie Ed.D., Department of Leadership Studies in Education and Organizations, Wright State University, 2019. Measuring leader-level engagement: Addressing the gap in employee engagement research.

Since the early 2000s, employee engagement has become a growing point of interest for scholars, organizations, and consultants alike due to its association with a variety of organizational outcomes such as job satisfaction, burnout, and turnover intent. Though there is much focus surrounding the measurement of employee engagement within the literature (Saks, 2019; Saks & Gruman, 2014), there is a notable absence in the literature related to a leader's own level of engagement. This study aimed to address this gap, utilizing the Employee Engagement Scale (EES; Shuck, Adelson, & Reio, 2017), which was developed in response to the lack of a preferred employee engagement measure grounded in Kahn's (1990) framework of cognitive, emotional, and behavioral engagement.

Confirmatory factor analysis (CFA) was used to evaluate if the EES could assess leader-level engagement on data from 147 formal leaders. Although the model goodness-of-fit indices did not provide irrefutable evidence that leader engagement could be assessed with the 12-item, three-factor structure of the EES, review of regression weights and reliability coefficients provided evidence for the overall structure of the measure, and modification indices provided opportunities to improve the EES model with a sample of leaders. Future research focused on leader-level engagement and its impact on organizational outcomes would benefit both academics and human resources practitioners.

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To my husband and family, thank you for yet again supporting me in my graduate studies. I promise I am done being a “professional student!”

And to my most wonderful accomplishment of all, I dedicate this to my son, Henry. Mommy loves you and cannot wait to see where your life’s journey takes you.

CHAPTER 1: INTRODUCTION

Since the early 2000s, employee engagement has been a growing point of interest for scholars, organizations, and consultants alike due to its association with key organizational outcomes (Kwon & Park, 2019; Saks, 2006; Saks, 2019; Saks & Gruman, 2014; Shuck, Osam, Zigarmi, & Nimon, 2017). Whether referred to as employee, work, or job engagement, research has focused solely on engagement at the employee-level and how an employee's physical, cognitive, and emotional states (Kahn, 1990) that are associated with various organizational outcomes, such as job satisfaction, job performance, organizational citizenship behaviors (OCB), and productivity (Crawford, LePine, & Rich, 2010; Harter, Schmidt, & Hayes, 2002; Macey, Schneider, Barbera, & Young, 2009; Rich, LePine, & Crawford, 2010; Saks, 2006; Shuck & Wollard, 2010), as well as turnover intention and burnout (Harter et al., 2002; Maslach, Schaufeli, & Leiter, 2001; Salanova & Schaufeli, 2008; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009).

Unlike other constructs that are distinctly synonymous with their measurement tool, burnout as in the Maslach Burnout Inventory (MBI) (Maslach et al., 2001) or job satisfaction as in the Job Satisfaction Survey (JSS) (Spector, 1997), scholars continue to focus attention on the need for developing a preferred measure within the employee engagement literature (Albrecht, 2010; Kwon & Park, 2019; Saks, 2006; Saks, 2019; Saks & Gruman, 2014; Schneider, Yost, Kropp, Kind, & Lam, 2017; Shuck, Adelson, &

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Reio, 2017; Shuck, Osam, Zigarmi, & Nimon, 2017). Saks and Gruman (2014) have identified at least seven different published scales to measure employee engagement. Differences ranged from which theory the measures were grounded, such as Kahn's (1990) engagement theory or Maslach's burnout theory (Maslach et al., 2001), to how they termed 'engagement,' from employee to job to work engagement.

Social science researchers have been examining what constitutes a valid measure since the early 1950s (Cronbach & Meehl, 1955). Validity provides support that an instrument accurately measures the theoretical model that it was created to assess (Carmines & Zeller, 1979). Providing statistical evidence of a measure's validity strengthens the underlying theoretical framework and the strength of testing the hypothesized relationships associated with the measure (Campbell, 1960). Without a valid measure, it is impossible to determine a measure's reliability. Reliability provides evidence that an instrument produces stable and consistent results across different samples over time (Carmines & Zeller, 1979). Thus, without a consistently valid and reliable employee engagement measure, it is questionable for researchers to continue to posit the relationship of employee engagement with other organizational outcomes such as job satisfaction, burnout, and turnover intention.

In addition to the literature noting the lack of a consistently reliable and valid tool to measure employee engagement (Albrecht, 2010; Kwon & Park, 2019; Saks, 2006; Saks, 2019; Saks & Gruman, 2014; Schneider et al., 2017; Shuck, Adelson, & Reio, 2017; Shuck, Osam, Zigarmi, & Nimon, 2017), there is a notable gap within the employee engagement literature related to a *leader's* own level of engagement within the workplace. An employee's relationship with his/her immediate supervisor has been well

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documented to influence an employee's job satisfaction, intention to quit (Gerstner & Day, 1997; Harris, Harris, & Brouer, 2009; Harris, Kacmar, & Witt, 2005; Liden & Maslyn, 1998), and level of engagement (Christian, Garza, & Slaughter, 2011; Jordan & Troth, 2011), yet assessing leader-level engagement remains absent from the literature.

Statement of the Problem

The culture within human resources practices and organizational leadership research has focused exclusive attention on how variables associated with employees influence an organization's bottom line. Yet if the employee-supervisor relationship has been widely cited as associated to an *employee's* level of engagement, job satisfaction, and turnover intention then might not a *leader's* own responses to these organizational variables within the workplace be worthy of attention within the literature? Reports from Gallup (Adkins, 2015; Robinson, 2010) have provided one of the few pieces of evidence that leader engagement is worth explicit focus due to the fiscal impact of leader disengagement on organizations. Disengaged leaders are costing companies \$77 to \$96 billion annually due to the influence they have on those they lead (Adkins, 2015), which includes the estimate that U.S. businesses lose a trillion dollars every year due to voluntary employee turnover (McFeely & Wigert, 2019).

Research on the association of leader engagement on organizational outcomes such as employee job satisfaction and turnover intention cannot be conducted if a valid, reliable tool to measure *leader* engagement is not identified. Thus, this dissertation aimed to evaluate if data provided by formal leaders could replicate the structure of an existing, validated employee engagement measurement tool. Based on the monetary impact of the studies cited from Gallup (Adkins, 2015; Robinson, 2010; McFeely & Wigert, 2019),

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businesses might consider the utility of assessing leader-level engagement and other organizational variables from the leader's point of view in an attempt to improve the engagement of their entire workforce and ultimately their bottom lines.

Rationale

Although there has been much published in the employee engagement literature focused on the need for a universal measure of employee engagement, the measurement of leader engagement has been completely absent from the engagement literature. This study aimed to address this absence, utilizing the Employee Engagement Scale (EES; Shuck, Adelson, & Reio, 2017), which is grounded in Kahn's (1990) engagement theory. As indicated by Shuck et al. (2017), the EES was developed in direct response to the lack of a preferred employee engagement measure grounded in Kahn's (1990) engagement framework of how one's cognitive, emotional, and physical energies influence his/her engagement within his/her workplace. Based on the evaluation of the measures presented by Saks and Gruman in their 2014 review article by the researcher of this study, the EES was selected for use to assess the research question and hypotheses for this dissertation. The EES was selected due to its theoretical framework grounded in Kahn's (1990) focus on the cognitive, emotional, and physical energies that directly relate to one's level of engagement. Further discussion of the various measures reviewed by Saks and Gruman (2014) is in Chapter 2.

Since the EES measure had strong validity and reliability based on initial reports from Shuck et al. (2017), a special case of structural equation modeling (SEM), confirmatory factor analysis (CFA), was employed in the present study as it takes a confirmatory rather than exploratory approach to data analysis (Byrne, 2010). SEM

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provided the statistical methodology to confirm the structural theory of the EES (Byrne, 2010). As the EES is made up of three first-order factors (cognitive, emotional, behavioral) and one second-order factor (engagement), second-order CFA was used on data from self-identified formal leaders who were recruited for inclusion in this study via LinkedIn (LinkedIn, n.d.), personal contacts, and the listserv of a mid-sized Midwestern university. CFA results provided evaluative data as to whether the EES could accurately measure leader-level engagement; the scale was initially validated using multiple groups of employee samplings (Shuck et al., 2017). The results of this study provided evidence to the management and leadership literature that leader-level engagement can be measured; however the means of how to assess leader-level engagement with a valid, reliable engagement measure requires additional consideration in future studies.

Conceptual Framework

Shuck, Adelson, and Reio (2017) recognized the gap within the literature concerning a valid and reliable employee engagement measure grounded in Kahn's (1990) theoretical framework focusing on one's cognitive, emotional, and physical energies associated with his/her engagement in the workplace. The EES was developed to be the first true measure of employee engagement, distinguishing the EES from job engagement (Rich et al., 2010; Saks 2006), work engagement (Schaufeli, Salanova, González-Romá, & Bakker, 2002), organizational engagement (Saks, 2006), as well as intellectual and/or social engagement (Soane, Truss, Alfes, Shantz, Rees, & Gatenbytt, 2012). As indicated by Saks and Gruman (2014), the lack of a preferred tool grounded in Kahn's (1990) theory to measure employee engagement was the impetus for Shuck et al. (2017) to develop the Employee Engagement Scale (EES).

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The 12 survey items included in the EES (see Appendix A for the complete EES tool) are grounded in Kahn's (1990) research on personal engagement, specifically related to one's cognitive, emotional, and physical engagement. In Kahn's (1990) initial work, these constructs paved the way for him to identify that one's cognitive, emotional, and physical engagement were grounded in the need for an employee's meaningfulness, safety, and availability within the workplace. Meaningfulness, safety, and availability are theorized to influence the degree to which one cognitively, emotionally, and physically engages in his/her work (May, Gilson, & Harter, 2004).

Meaningfulness is defined as the value of the work, as judged by an individual's own ideals and standards (Hackman & Oldham, 1980; Renn & Vandenberg, 1995).

Safety is defined as the ability to express one's self without fear of retaliation for one's self-image, status, or career (Kahn, 1990). Availability is the most directly related to the three constructs identified by Kahn (1990), focusing on availability as one's belief that he/she has the physical (synonymous with *behavioral* throughout the literature and this dissertation), emotional, and/or cognitive resources to be fully engaged at work. From this conceptual framework, the study by Shuck et al. (2017) established the 12-item Employee Engagement Scale (EES; see Appendix A) and provided initial validation of the measure's factorial structure as it relates to Kahn's (1990) theoretical framework.

The EES model illustrated in Figure 1 was created to visualize the structure of the EES that was provided in the study by Shuck et al. (2017). The original validation study for the EES utilized samples of employees to obtain the data used for running confirmatory factor analysis (CFA) in the original study (Shuck et al., 2017). However for this study, the population of interest was formal leaders (supervisors or managers),

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thus the dependent variable of interest shifts from *employee* engagement to *leader* engagement. This study built from Shuck et al.'s (2017) research to address the gap in the literature for a theoretically sound, valid, and reliable measurement tool to assess not only employee engagement but also more specifically *leader engagement*.

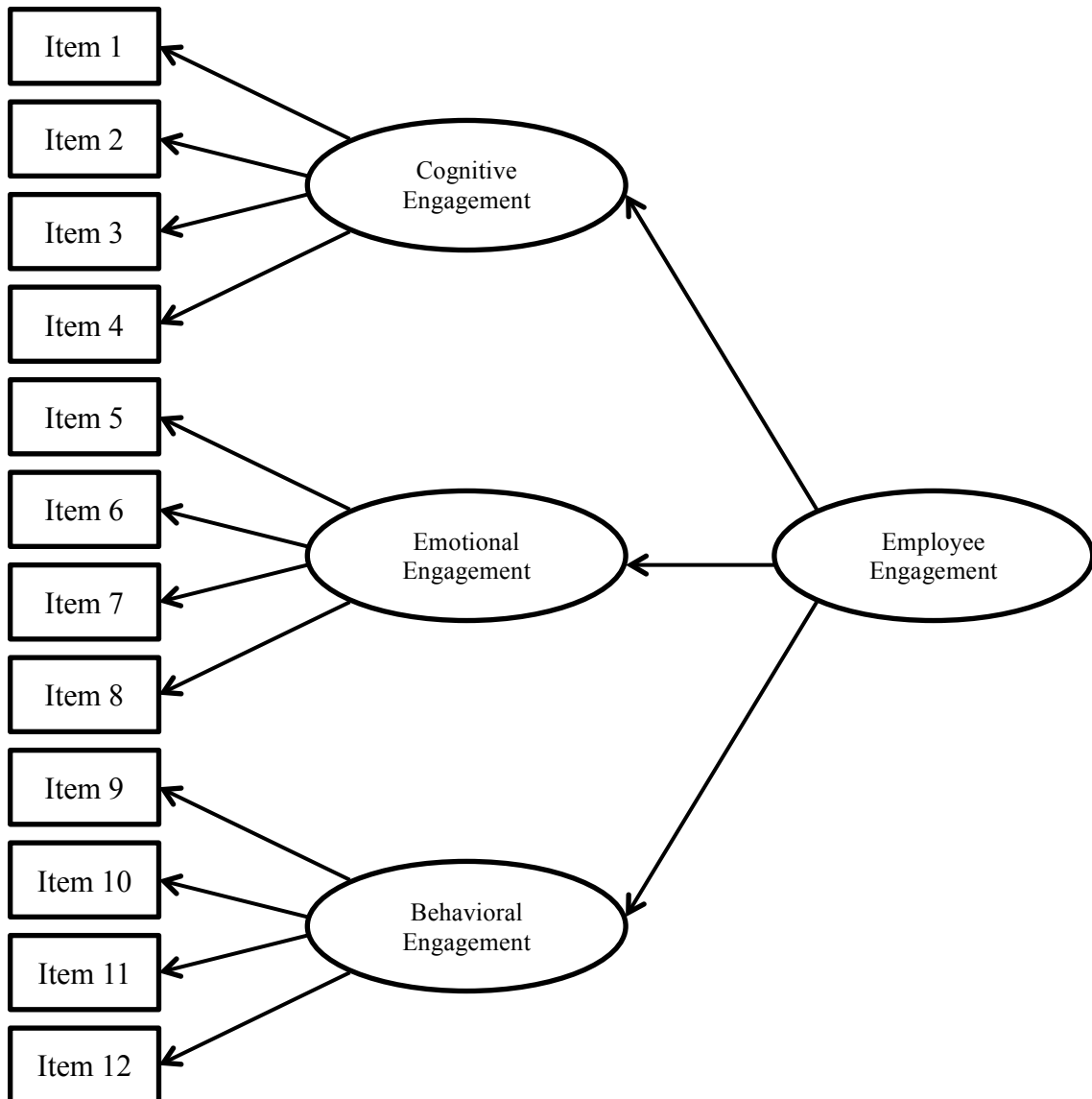


Figure 1. Visualization of Shuck et al.'s (2017) EES model.

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Research Question and Hypotheses

This study examined the following research question:

How well do the data collected from leaders replicate the three-factor structure identified in the Employee Engagement Scale (EES) by Shuck, Adelson, and Reio (2017)?

To provide more precise examination of the research question, the following hypotheses were tested:

H1. Responses to the Employee Engagement Scale (EES) can be explained by three first-order factors (emotional, cognitive, and behavioral) and one second-order factor (engagement).

Null H1. Responses to the Employee Engagement Scale (EES) cannot be explained by three first-order factors (emotional, cognitive, and behavioral) and one second-order factor (engagement).

H2. Covariance among the three first-order factors is explained fully by their regression on the second-order factor.

Null H2. Covariance among the three first-order factors cannot be explained fully by their regression on the second-order factor.

H3. Data from leaders fits the structure model of the EES.

Null H3. Data from leaders do not fit the structure model of the EES.

Significance

The significance of this study is two fold. One, the factorial validity of the theoretically grounded EES (Shuck et al., 2017) measure needed to be further evaluated to add credence to the literature on valid and reliable employee engagement measures.

Two, a sampling of formal leaders were surveyed using the EES specifically to address

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the gap in the literature related to assessing leader-level engagement.

Definition of Relevant Terms

Behavioral engagement: Psychological state of intention to act in a manner that positively impacts work performance (Macey & Schneider, 2008; Rich et al., 2010); synonymous with physical engagement.

Cognitive engagement: The intensity of one's mental energy towards positive outcomes within the organization he/she works (Rich et al., 2010).

Confirmatory factor analysis (CFA): A statistical technique used to verify the factor structure of observed variables, specifically used to test the hypothesized relationship between observed variables and their underlying latent constructs (Tabachnick & Fidell, 2013).

Emotional engagement: Representative of one's degree of enthusiasm, happiness, and optimism experienced in the workplace (Bono, Foldes, Vinson, & Muros, 2007).

Employee: hierarchical junior of a leader; synonymous with subordinate and follower

Employee engagement: A positive, active, work-related psychological state operationalized by an employee's ability to maintain the intensity and direction of his/her cognitive, emotional, and behavioral energies (Shuck, Osam, Zigarmi, & Nimon, 2017).

Leader: Hierarchical superior of an employee; synonymous with supervisor or manager.

Leader engagement: The immersion and holistic investment of a leader's entire self (physically, cognitively, and emotionally) into his/her work role within an organization (Christian et al., 2011).

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Physical engagement: Psychological state of intention to act in a manner that positively impacts work performance (Macey & Schneider, 2008; Rich et al., 2010); synonymous with behavioral engagement.

Scope

The scope of this study was limited to volunteers who self-identified as holding a formal leadership role (supervisors or managers) across different levels of management who participated in completing the EES measure via LinkedIn or email invitation.

Assumptions

The following assumptions were adopted for this study: (a) participants truthfully self-identified as supervisors or managers in order to be included in the sampling for this study; (b) participants responded truthfully on the EES, and (c) participants perceived no threat of repercussion for their involvement in the study.

Organization of the Study

Chapter One presented the statement of the problem, rationale, conceptual framework, research questions, significance of the study, definition of terms, scope, and assumptions of the study. Chapter Two contains the review of literature and research related to employee engagement. Chapter Three contains the methodology and procedures used to gather data for this study. Chapter Four contains the results of analyses and outcomes that emerged from this study. Chapter Five contains a summary of the study and analytic results, discussion drawn from the results, limitations, and recommendations for future research.

CHAPTER 2: REVIEW OF LITERATURE

Adkins (2015) suggested that leader disengagement cost companies \$77 to \$96 billion annually due to the influence leaders have on those they lead. Yet the primary focus of engagement research has been on how engaged *employees* are in the workplace. As Welbourne (2007) stated over a decade ago, “if [engagement] is something organizations are trying to do to employees rather than a quality that leaders are demonstrating through example, the interventions associated with engagement will fail” (p. 45). Though Welbourne (2007) called for further research on leader-level engagement years ago, a gap remains within the engagement literature as to whether *leader* engagement has the same impact on organizational outcomes as evidenced in *employee* engagement research.

A primary area of focus within the employee engagement literature centers on how to measure the construct. Bailey, Madden, Alfes, and Fletcher’s (2017) review of the engagement literature indicated that 86% of studies used the Utrecht Work Engagement Scale (UWES; Schaufeli et al., 2002), which is grounded in burnout theory (Maslach et al., 2001). Yet, as seen in Table 1, the majority of published employee engagement measures are grounded in Kahn’s (1990) engagement theory; however, replication studies seem to be unable to consistently produce reliable and valid results of those most prolifically cited measures (Saks & Gruman, 2014). To address both the scarcity in the literature related to leader engagement and the need for a consistently valid measure, this

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dissertation sought to analyze if leader-level engagement not only could be measured using the EES (Shuck et al., 2017) but also would reflect the factor structure of the EES.

Table 1

Theoretical Frameworks for Various Engagement Measures

Theoretical Framework	Engagement Measures
Engagement theory (Kahn, 1990)	Work and Family Engagement Scale (Rothbard, 2001)
	May et al.'s (2004) Engagement Scale
	Job and Organizational Engagement Scale (Saks, 2006)
	Job Engagement Scale (JES; Rich et al., 2010)
	Intellectual, Social, Affective (ISA) Engagement Scale (Soane et al., 2012)
	Felt and Behavioral Engagement Scale (Stumpf et al., 2013)
	Employee Engagement Scale (EES; Shuck et al., 2017)
Burnout theory (Maslach et al., 2001)	Utrecht Work Engagement Scale (UWES; Schaufeli et al., 2002)

It should be noted that several variations exist within the literature as to how employee engagement can be defined and named. Though the constructs of *job* engagement (Rich et al., 2010) and *work* engagement (Christian et al., 2011) are both grounded in Kahn's (1990) theoretical framework and cited throughout the literature by those names, the terms appear to be interchangeable with *employee* engagement. A review of the literature by Shuck, Osam, Zigarmi, and Nimon (2017) focused specific attention on the differences between employee, job, and work engagement, to name a few. The authors' provided detailed discussion of the similarities and differences between the various engagement frameworks and suggested that researchers investigating

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employee engagement should focus specifically on the construct as “a positive, active, work-related psychological state operationalized by the maintenance, intensity, and direction of cognitive, emotional, and behavioral energy” (Shuck, Osam, Zigarmi, & Nimon, 2017, p. 269). Even Bakker and Leiter (2010) utilized both work engagement and employee engagement interchangeably in their handbook of engagement theory and research, further illustrating this peculiar incongruence within the literature (Albrecht, 2010; Saks & Gruman, 2014; Shuck, Osam, Zigarmi, & Nimon, 2017).

Theoretical Perspective

The theoretical perspective for this research was grounded in social constructionism (Burr, 2003). Social constructionism is concerned with the meaning placed on an object or event by those within a society, thus shaping the reality of that society. Yet this socially constructed reality of a particular society may not be representative of the reality shared by those outside of that society (Berger & Luckmann, 1966). Berger and Luckmann (1991) have focused attention on the nature and construction of knowledge, specifically as to how knowledge emerged and how knowledge came to have significance for a given society.

Knowledge is viewed as created by the interactions among individuals within a society. This view is fundamental to constructionism because it aids in shaping one's identity (Schwandt, 2003). In relation to measuring leader engagement, one's social reality is essential to the perception of his/her level of engagement within the workplace because one's individualized reality about their engagement is grounded in the social construction of what engagement means within the leaders' societies. The data collected in the present study represented leaders' self-report about their engagement; the

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respondents were reporting their perceived socially constructed frame of reality about leadership.

Leader Engagement

The few articles that have been published focusing on the wellbeing of leaders were studied from the frame of leader-member exchange theory (Bernerth & Hirschfeld, 2016). One such article included data indicating that leader engagement and emotional exhaustion were intervening variables of transformational leadership style (Courtright, Colbert, & Choi, 2014). Courtright et al. (2014) used the Utrecht Work Engagement Scale (Schaufeli et al., 2002), grounded in Maslach et al.'s (2001) burnout theory not Kahn's (1990) engagement theory, to assess leader engagement. The authors adopted the definition of engagement based on the theoretical frame of vigor, dedication, and absorption established by Schaufeli et al. (2002).

Aldatmaz, Aykaç, and Dicle (2016) provided research on “manager” engagement and its relationship to benefits and retention in organizations, but the authors utilized the Gallup engagement survey which focuses on management practices and is not grounded in theory (Saks & Gruman, 2014). Gallup has published several reports over the last decade stating that disengaged leaders cost companies \$77 to \$96 billion annually due to the influence leaders have on the employees they lead (Adkins, 2015). In addition, an estimated trillion dollars is lost by U.S. businesses every year due to voluntary employee turnover (McFeely & Wigert, 2019).

To offer additional evidence of the gap regarding leader engagement within existing employee engagement research, the researcher of the present study used the Academic Search Complete database through the university library to find and examine

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peer-reviewed, academic journal articles published through October 2019 with the search terms “*leader engagement*” (15 articles), “*supervisor engagement*” (three articles), or “*manager engagement*” (10 articles). The searches conducted with these three sets of search terms yielded no articles that included measurement of leader-level engagement based on this study’s definition of engagement (cognitive, emotional, and physical engagement; Kahn, 1990). Furthermore, the addition of the search term “*measure*” to each of these searches yielded only two published, peer-reviewed articles (non-dissertation/thesis) for “*leader engagement*,” 12 published articles for “*supervisor engagement*,” and two published articles for “*manager engagement*.” Adding the terms did not yield any articles that met the theoretical framework and definitions of this study.

The paucity of existing published literature regarding leader engagement using Kahn’s (1990) theory of engagement provided support for the assertion that leader-level engagement remains a notable gap within the literature. The absence is notable given the vast number of articles that have documented the impact of the employee-leader relationship on many crucial organizational outcomes from employee performance to burnout to turnover intention (Christian et al., 2011; Gerstner & Day, 1997; Harris, Harris et al., 2009; Harris et al., 2005; Jordan & Troth, 2011; Liden & Maslyn, 1998). Without a valid, reliable tool to measure leader engagement, it is impossible for researchers to identify how *leader* engagement may influence crucial organizational outcomes as noted throughout the employee engagement literature.

Antecedents of Engagement

Throughout the literature there are many factors that are noted to have an influence on an employee’s engagement within the workplace. Job characteristics, such

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as skill variety, task-identify, and autonomy (Hackman & Oldham, 1980) provide individuals with the opportunity and motivation to bring more of themselves into their work, thus becoming more engaged (Kahn, 1992). In terms of social exchange theory (SET; Blau, 1964), external rewards and recognition for a job provide incentive for employees to become more engaged (Saks, 2006). Blau (1964) defined the social exchange as a mutually contingent and rewarding process within a dyad. Social exchanges are beyond the contractual obligations that an employee has with his/her employer and instead focus on the voluntary actions of employees in exchange for reciprocal benefits (Blau, 1964).

Yet the literature regarding the antecedents of engagement focus sole attention on the employee, not the leader. Figure 2 is a visual representation of both commonly cited antecedents of employee engagement such as job characteristics, affective commitment, and supervisor support, as well as consequences associated with engagement such as organizational citizenship behavior (OCB), turnover intention, and job satisfaction.

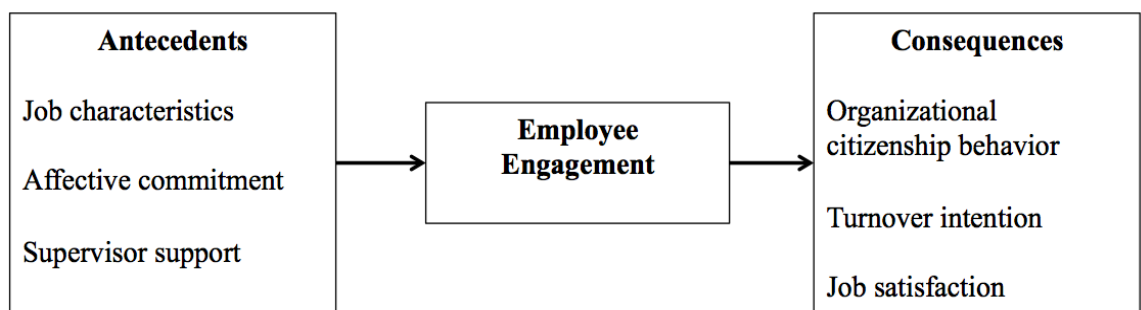


Figure 2. Antecedents and consequences of employee engagement. The arrow from Antecedents to Employee Engagement indicates that these variables influence one's level of engagement. The arrow from Employee Engagement to Consequences indicates that one's level of engagement influences various organizational consequences.

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Job Characteristics

According to Kahn (1990, 1992), psychological meaningfulness can be achieved from job characteristics that provide variety, challenging work, use of different skills, personal discretion, and the opportunity to make important contributions to one's job and organization. The characteristics of one's job provide he/she with the opportunity and motivation to bring more of themselves into their work, thus becoming more engaged (Kahn, 1992). These features of the job are based on Kahn's (1992) review of Hackman and Oldham's (1980) job characteristics research, specifically skill variety, task identity, task significance, autonomy, and feedback. Jobs that exhibit these job characteristics provide individuals with the ability and incentive to bring more of themselves into their work and ultimately be more engaged (Kahn, 1992).

Affective Commitment

Affective commitment parallels the conditions of engagement that Kahn (1990) grounded in one's sense of meaningfulness and safety within the workplace. Likened to the definition of emotional engagement, affective commitment emphasizes the sense of belonging and emotional bond that employees have to their jobs, the organization, or both (Macey & Schneider, 2008; Rhoades, Eisenberger, & Armeli, 2001; Saks, 2006). Based on an extensive review of the literature, Rhoades and Eisenberger (2002) posited that affective commitment is strongly correlated with perceived organizational support (POS). Perceived organizational support is the belief that an organization values employees' contributions in the workplace and cares about their personal well being (Eisenberger, Huntington, Hutchison, & Sowa, 1986). Rhoades and Eisenberger (2002) reviewed more than 70 studies that included POS data and noted that those studies measuring POS and

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affective commitment had an average weighted correlation of $r = .65$, $p < .001$, indicating that POS and affective commitment have a significantly strong, positive relationship.

Other researchers have also indicated that there is a reciprocal relationship between affective commitment and POS (Eisenberger et al., 1986; Mowday, Porter, & Steers, 1982). Thus, an employee's affective commitment may be seen to increase the indebtedness that he/she has prescribed to the perceived level of organizational support received. In theoretical terms, the reciprocal relationship between POS and affective commitment is grounded in social exchange theory (SET; Lee & Peccei, 2007). As Blau (1964) described SET, the social exchanges within the workplace that go beyond the contractual obligations of one's job duties are associated with both the perceived level of organizational support and perceived affective commitment, specifically as it relates to one's sense of meaningfulness and safety within an organization (Kahn, 1990).

Affectively committed employees exhibit a strong sense of belonging and identification with their jobs and the organization, thus increasing their involvement in organizational activities and the pursuit of organizational goals (Meyer & Allen, 1991; Mowday et al., 1982). Maslach et al. (2001) posited that a strong affective commitment to one's workplace provides the same level of emotional fulfillment that employees experience as a result of being engaged in their work roles; albeit theorizing that employee engagement is the antithesis of burnout. Though there are similarities between affective commitment and engagement, Shuck et al. (2017) argued that these constructs are distinct, even if affective commitment and engagement occur simultaneously within an individual. This is due in part to the association of affective commitment with social exchange theory (SET), in that employees interact in a reciprocal relationship with their

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employer, whereas engagement is focused on the individual's cognitive, emotional, and behavioral energies at play within their work (Shuck et al., 2017). Yet as with the engagement construct, these studies on affective commitment focus attention at the employee-level only, without mention of a leader's own affective commitment within the workplace.

Supervisor Support

Leader-member exchange (LMX) theory grew out of Blau's (1964) research on social exchange theory (SET). Graen (1976) developed LMX theory to focus exclusive attention on the relationship formed between a supervisor and each of his/her subordinates. By focusing emphasis on the unique relationships that supervisors develop with each of their subordinates, LMX theory has become an important means to evaluate the impact that supervisor-subordinate relationships have on organizational outcomes (Graen, Novak, & Sommerkamp, 1982; Vecchio, Griffith, & Hom, 1986). Settoon, Bennett, and Liden (1996) indicated that the quality of the LMX relationship is associated with both "out of role" (e.g., organizational citizenship behavior) and "in role" behaviors, the latter associated with engagement (Saks, 2006). Grounded in social constructionism (Burr, 2003), perceived supervisor support is taken into account when employees are asked to evaluate the quality of the LMX relationship from their perspective. This is based on the assertion that one's perceived reality about their relationship with their supervisor is grounded in the social construction of what supervisor support means within the employee's society.

Though Batista-Taran, Shuck, Gutierrez, and Baralt (2009) argued that LMX theory does not provide evidence for how leaders may positively influence employee

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engagement (due to the concern of in-group versus out-group dichotomization of subordinates), Jordan and Troth (2011) argued that high quality LMX relationships have a mediating effect on employee engagement as it relates to job satisfaction and turnover intention.

This argument was based on Jordan and Troth's (2011) research with a sample of 578 employees at an Australian pathology company indicating that emotional intelligence dimensions of 'own awareness' and 'own management' were significantly and positively correlated with job satisfaction ($p < .0001$) and negatively correlated with turnover intentions ($p < .0001$). Furthermore, Breevaart, Bakker, Demerouti, and van den Heuvel (2015) suggested that the relationship between LMX and work engagement had a significant ($p < .001$) inter-correlation of $r = .46$.

Bernerth and Hirschfeld (2016) recognized that within the LMX literature the wellbeing of the leader was largely overlooked. Their study identified that leader job stress had a positive relationship with low average LMX ($\beta = .35, p < .01$; Bernerth & Hirschfeld, 2016). Acknowledging this gap in the LMX literature further supports the notion that not only employees but also leaders should be included when assessing one's own wellbeing.

Consequences of Engagement

Just as there are several antecedents to engagement, there are numerous consequences related to an employee's level of engagement (see Figure 2). These consequences, referred to as organizational outcomes, are some of the most notable relationships studied within engagement literature: organizational citizenship behavior (OCB) (Rich et al., 2011; Saks, 2006), turnover intention (Harter et al., 2002), and job

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satisfaction (Maslach et al., 2001; Rich et al., 2010; Saks, 2006) (see Figure 2).

Organizational Citizenship Behaviors

Unlike the definition of engagement, organizational citizenship behaviors (OCBs) are defined as the informal, “out of role” behaviors that help to facilitate organizational functioning; engagement focuses on the “in role” behaviors demonstrated in the performance of an employee’s formal job tasks (Organ, 1988; Organ & Ryan, 1995; Saks, 2006). In line with Kahn’s (1990) theory of engagement, many OCB researchers have focused on the influence of cognition and affect towards one’s work (Lee & Allen, 2002; Organ & Near, 1985; Weiss & Cropanzano, 1996). The researchers asserted that affect enhances both helpful behaviors (i.e., OCB) and harmful behaviors in the workplace (George & Brief, 1992; Isen & Baron, 1991; Weiss & Cropanzano, 1996).

An additional strand of OCB research centers on how the employees’ positive behaviors influence employee performance evaluations. Since the positive behaviors are defined as going “above and beyond” the formal job requirements, Allen and Rush (2001) suggest that leaders may be perceiving those employees exhibiting OCB to have higher commitment and loyalty to the organization. This misperception of an employee’s OCB may exist even if these employees are not fully engaged in their specific, defined work roles and responsibilities (Podsakoff, Whiting, Podsakoff, & Blume, 2009). Yet, as with other organizational variables of interest in the literature, OCB has been studied at the employee-level and seemingly ignores how a leader’s OCB may affect organizational outcomes, such as profitability, productivity, and efficiency (Podsakoff et al., 2009).

Turnover Intention

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The business case for reducing turnover among employees is grounded in the associated cost turnover has on organizations (Cascio, 2000; Halbesleben, 2010; Harter et al., 2002; Schaufeli & Bakker, 2004). An employee's intention to quit (turnover) may not be associated only with employee engagement but also with job satisfaction (Tett & Meyer, 1993), OCB (Chen, Hui, & Sego, 1998), and burnout (Maslach et al., 2001). In a study by De Lange et al. (2008), low levels of engagement ($R = .64$), low job autonomy ($R = .77$), and low departmental resources ($R = .93$) accurately predicted an employee's turnover ($\beta = -.60$).

Putting a monetary figure on the annual cost of turnover, reporters from Gallup (McFeely & Wigert, 2019) estimated that U.S. businesses lose a trillion dollars every year due to voluntary employee turnover based on their review of 2017 U.S. Bureau of Labor Statistics and McFeely and Wigert's (2019) estimated cost of replacing employees in the workforce. This report further stated that in the three months before employees left, 52% of exiting employees stated that neither their direct supervisor nor any other leader spoke with them about their job satisfaction or future with the organization (McFeely & Wigert, 2019). Yet, it was not clear in the Gallup report by McFeely and Wigert (2019) how this data regarding 52% of exiting employees was collected.

As noted with the other organizational outcome variables described, researchers assessing the impact of turnover intention have focused exclusively on the employee. To date, there are no specific delineations within reports such as the one from Gallup in April 2019 (McFeely & Wigert, 2019) about the organizational costs when leaders quit. In addition, the data on separations that are reported monthly by the U.S. Bureau of Labor Statistics' Job Openings and Labor Turnover Survey (JOLTS) do not indicate whether

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those who ‘quit’ (voluntary separation) hold a supervisory role within an organization. This missing data provide additional evidence that leaders are not of focus when others have assessed the impact of turnover on organizations.

Job Satisfaction

Job satisfaction is defined as the affective, emotional response to one’s job or to the specific facets of the job (Locke, 1976). Based on extensive review of the literature, researchers have indicated that one’s engagement has a positive, direct effect on one’s job satisfaction (Maslach et al., 2001; Rich et al., 2010; Saks, 2006). Leadership style, specifically transformation leadership, has also been shown to be highly predictive of employee job satisfaction ($\beta = .28, p < .01$; Piccolo, Bono, Heinitz, Rowold, Duehr, & Judge, 2012), with job satisfaction highly correlated to job performance ($\rho = .30, p < .01$; Judge, Bono, Thoresen, & Patton, 2001). A critical relationship for organizations to be aware as job performance is related to an organization’s financial bottom line.

As with engagement research, job satisfaction is studied primarily at the employee-level though there are a growing number of publications on leader-level job satisfaction. Of the few publications related to the leader’s level of job satisfaction, many are found within healthcare management literature (Laschinger, Purdy, & Almost, 2007; Pantouvakis & Mpogiatzidis, 2013) and international companies such as China, South Africa, and Tunisia (Karmeni, Hamadi, Mesri, & Slim Ben Mimoun, 2017; Mayer, Louw, & Baxter, 2015; Zhao, Zhang, Kraimer, & Yang, 2017). The deficiency in this area of the literature provides additional support for this and future studies to focus attention on leader-level organizational inputs and outcomes, from job satisfaction to engagement.

Engagement Measures

Though numerous researchers have supported the relationship between employee engagement and organizational outcomes, the findings are not based on a single, agreed-upon measure (Albrecht, 2010; Saks & Gruman, 2014; Shuck et al., 2017). In their review of research on employee engagement, Saks and Gruman (2014) identified at least seven different scales to measure engagement (see Table 1). Though the majority of measures are grounded in Kahn's (1990) engagement theory, research by Bailey et al. (2017) indicated that the most widely utilized measure reported in the literature is actually the Utrecht Work Engagement Scale (UWES; Schaufeli et al., 2002). The UWES is more similar to burnout theory (Maslach et al., 2001) than to Kahn's (1990) conceptual model of engagement. Each of the measures reviewed by Saks and Gruman (2014) were analyzed for whether the measure should be included or excluded as the measurement tool for the present study.

The researcher of the present study analyzed each of the seven measures and their associated statistics as previously reviewed by Saks and Gruman (2014), including the EES measure published by Shuck et al. in 2017. Following this section, Table 2 should be referenced for ease of comparing each of the engagement measures based on published statistical data related to the sample size and results, including reliability and model fit indices.

Work and Family Engagement Scale

Rothbard (2001) developed a model to study engagement in relation to the multiple roles that individuals have within both work and family units. Rothbard (2001) argued that the effects of engaging in these multiple roles might cause either depletion or

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enrichment from work-to-family engagement or vice versa based on her review of the literature. Though grounding her definition of engagement in the theoretical frame provided by Kahn (1990), Rothbard (2001) created an engagement measure specifically to measure the latent constructs of work and family engagement, with items further grouped by either attention (cognitive availability) or absorption (intensity of one's focus on a role). Rothbard (2001) utilized 790 employees at a large, public university to test her Work and Family Engagement Scale. Though this measure provides acceptable overall model fitness based on review of indices provided in the study ($\chi^2 = 795.14$; $df = 248$; $p < 0.001$; CFI = 0.93; RMSEA = 0.057), the scale was not selected for use in the present study due to the specificity of the latent constructs (work, family engagement) that Rothbard (2001) created the scale to measure.

May, Gilson, and Harter Engagement Scale

May et al. (2004) developed a 13-item measure to test several hypotheses related to the psychological conditions associated with Kahn's (1990) meaningfulness, safety, and availability and engagement (cognitive, emotional, physical) within the workplace. The primary purpose of May et al.'s (2004) study was to identify a model that would better predict how and why some individuals come to psychologically identify with their jobs, while others do not (May et al., 2004). May et al. (2004) tested their engagement scale using employees from a large insurance firm in Midwestern ($N = 199$). Based on revisions to their model, May et al. (2004) reported their 13-item scale to have a reliability coefficient of $\alpha = 0.77$. Additional model fit indices were not included in the publication of their original study and thus could not be analyzed in the present study.

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Viljevac, Cooper-Thomas, and Saks (2012) tested the validity of this measure with 139 call center employees at two finance organizations in Auckland, New Zealand, but CFA results identified weak evidence ($\chi^2 = 74.587$, $df = 41$, $p < 0.001$, RMSEA = 0.077, CFI = 0.853, TLI = 0.764) for the three-factor engagement measure published by May et al. (2004). Though the May et al. (2004) engagement scale is not widely used throughout the engagement literature, the inconsistent results in these two aforementioned studies provides further evidence to the debate on how to measure the employee engagement construct within the literature and the concern with getting inconsistent results.

Job and Organizational Engagement Scale

One of the more prolific researchers within the engagement literature, Saks (2006) conducted a meta-analysis of the existing engagement literature and identified items associated with either job or organizational engagement to study the antecedents and consequences of employee engagement. At the time of his study, Saks (2006) noted the limited research on employee engagement, providing the impetus for the development of the items he utilized in his study. Based on social exchange theory (SET), Saks' (2006) study provided evidence of the importance of studying engagement within the literature and justifying its relationship with many crucial organizational outcomes, such as job satisfaction, organizational commitment, organizational citizenship behaviors (OCB), and intention to quit.

The initial validation study of Saks' (2006) Job and Organizational Engagement Scale included 102 participants across a variety of industries in Toronto, Canada. Though acceptable internal reliability (α) was achieved for this scale (five items associated with

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job engagement, $\alpha = 0.82$; six items associated with organizational engagement, $\alpha = 0.90$), this scale was not utilized in the present study since it does not explicitly measure for the three dimensions of engagement: cognitive, emotional, and behavioral.

Job Engagement Scale

Rich, LePine, and Crawford (2010) developed the Job Engagement Scale (JES) based on the argument that one's engagement is directly linked to one's job performance, grounded in Kahn's (1990) engagement theory. The items that Rich et al. (2010) included in their study to measure engagement were based on a variety of constructs likened to the dimensions of physical, emotional, and cognitive engagement. For physical, Rich et al. (2010) modified items from a "work intensity" measure developed by Brown and Leigh (1996). For emotional, they drew from items in Russell and Barrett's (1999) research on "core affect." Finally, for cognitive, Rich et al. (2001) drew from the items in Rothbard's (2001) measure, including those identified as either attention (level of focus) or absorption (level of intensity).

To test the JES, 245 full-time firefighters and their supervisors from four municipalities were included in the study (Rich et al., 2010). It should be noted that though supervisors were included, there was no explicit differentiation or discussion of results related to those persons in a formal leadership role. Though this measure provides acceptable model fitness ($\chi^2 = 391.90$, $df = 132$, $p < 0.001$, CFI = 0.97, SRMR = 0.05, RMSEA = 0.09), this measure was not used for the present study in order to offer consistency throughout this study by referring to the construct as employee engagement—not job engagement, as this scale was termed.

Intellectual, Social, Affective Engagement Scale

Soane, Truss, Alfes, Shantz, Rees, and Gatenbytt (2012) developed the Intellectual, Social, Affective (ISA) Engagement Scale grounded in Kahn's (1990) engagement theory. Building from Kahn's (1990) work, Soane et al. (2012) focused on three facets of engagement: intellectual, social, and affective. Though there is notable alignment with the focus of Kahn's (1990) theoretical framework (affective and emotional; intellectual and cognitive), the ISA was developed to capture what Soane et al. (2012) identified an additional dimension to the construct, specifically social engagement, which did not directly align with Kahn's (1990) model of cognitive, emotional, and physical engagement.

Soane et al. (2012) tested their nine-item, three-factor ISA Engagement Scale in two waves. In Study 1, they included 278 manufacturing employees in the United Kingdom (UK), and based on review of results ($\chi^2 = 64$, $df = 24$, $p < 0.001$, CFI = 0.98, GFI = 0.95, SRMR = 0.04, RMSEA = 0.08), Soane et al. (2012) determined the ISA Engagement Scale had acceptable model fit and proceeded to test the scale with another sample to confirm internal reliability. Study 2 included 835 retail workers in the UK and once again, they obtained acceptable model fit results ($\chi^2 = 128$, $df = 24$, $p < 0.001$, CFI = 0.98, GFI = 0.96, SRMR = 0.03 RMSEA = 0.07; $\alpha = 0.88$). Though this measure has acceptable model fitness across two validation studies by Soane et al. (2012), the three dimensions of the scale were not explicitly in sync with Kahn's dimensions of engagement at the core of the present study: cognitive, emotional, and behavioral.

Felt and Behavioral Engagement Scale

Stumpf, Tymon, and van Dam (2013) developed a two-dimensional measure to assess engagement for persons working in technically oriented groups. Though the underlying framework for their study is grounded in Kahn's (1990) engagement research, Stumpf et al. (2013) created their scale based on the research of Macey and Schneider (2008), specifically regarding the feelings and behaviors that people exhibit when highly engaged in their jobs.

Stumpf et al. (2013) tested their felt and behavioral engagement scale with 341 Canadian professional across 38 different work groups. The only results provided in Stumpf et al. (2013) study indicated that the five-items associated with felt engagement had internal reliability of $\alpha = 0.89$, and that the nine-items associated with behavioral engagement had internal reliability of $\alpha = 0.92$. Though these results indicated strong internal reliability of the items associated with these engagement factors, this scale was not utilized in the present study because it only focuses on the emotional and behavioral dimensions of engagement and did not explicitly include the cognitive dimension of engagement.

Utrecht Work Engagement Scale

As described earlier, the Utrecht Work Engagement Scale (UWES) is grounded in burnout theory (Maslach et al., 2001). The measure consists of 17 items, loading on three factors: vigor, dedication, and absorption. In relation to Kahn's (1990) dimensions of engagement (cognitive, emotional, and physical), Schaufeli et al. (2002) determined that vigor associates with the physical dimension, absorption with the cognitive, and dedication with the emotional. The initial validation of the UWES was conducted with

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314 Spanish university students and 619 employees from 12 private and public Spanish companies (total $N = 1,033$). Results indicated poor model fit based on review of model fit indices ($\chi^2 = 952.66$, $df = 232$, $p < 0.001$, RMSEA = 0.05, NFI = 0.87, CFI = 0.90). In addition, Viljevac et al. (2012) also indicated poor model fit of the UWES ($\chi^2 = 257.784$, $df = 132$, $p < 0.001$, RMSEA = 0.083, CFI = 0.905, TLI = 0.878) in their study which included 139 call center employees at two financial organizations in Auckland, New Zealand.

Though there is a noted association between Schaufeli et al.'s (2002) research and Kahn's (1990) engagement theory, a review of the literature indicates that there is no consensus on whether simply identifying as *not* having burnout in one's work role is truly the same as one being engaged in his/her job. Furthermore, studies by Crawford et al. (2010) and Byrne, Peters, and Weston (2016) asserted that the UWES and MBI constructs were not empirical opposites, as claimed in previous research (Maslach & Leiter, 1997), based on their reviews of meta-analysis results that showed inconsistent relationships when correlating job demands-resources (Demerouti, Bakker, de Jonge, Janssen, & Schaufeli, 2001) to both burnout and engagement constructs. These inconsistent results are further supported by the poor model fit data results from the studies previously mentioned by Schaufeli et al. (2002) and Viljevac et al. (2012).

Employee Engagement Scale

Shuck et al. (2017) developed the Employee Engagement Scale (EES) in response to the lack of a preferred measurement of employee engagement within the literature. As noted by Saks and Gruman (2014), the multitude of measures assessing job engagement (Rich et al., 2010; Saks 2006), work engagement (Schaufeli et al., 2002), organizational engagement (Saks, 2006), or intellectual and/or social engagement (Soane et al., 2012) all

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fell short of fulfilling the need for an employee engagement measure grounded in Kahn's (1990) engagement research, focused specifically on the cognitive, emotional, and behavioral energies at play. Based on the high reliability coefficients (Cronbach's alpha) of the survey items loading onto one of three factors (cognitive, emotional, behavioral) and that the EES was grounded in Kahn's (1990) engagement theory, the EES was selected for use in the present study, with more in depth discussion of the EES forthcoming in this chapter.

The information included in Table 2 highlights the discussion within the literature regarding a lack of consistency in observed statistics when testing for measurement validity. Because sample size is critical for factor analyses, Table 2 information further emphasizes the need for adequate sample sizes when assessing engagement. Based on Comrey and Lee's (1992) rating scale of adequate sample sizes for factor analysis, the cited studies in Table 2 had 'poor' ($N = 102$; Saks, 2006) and 'fair' ($N = 213$; May et al., 2004) sample sizes. A detailed discussion on the model fit criterion (indices) used to determine overall model goodness of fit is included in Chapter Three.

Table 2

Selected Engagement Measures and Results

Study Citation	Engagement Measurement	Sample	Results
Shuck, Aldeson, and Reio (2017)	Employee Engagement Scale (EES)	Large, regional sampling of financial services employees across 16 independent work units; $N = 1,067$	$\chi^2 = 459.89$, $df = 51$, $p < 0.001$, CFI = 0.99, TLI = 0.99 Internal consistency reliability: cognitive $\alpha = 0.94$, emotional $\alpha = 0.88$, behavioral $\alpha = 0.91$
Rothbard (2001)	Work and family engagement survey	Employees at a large, public university; $N = 790$	$\chi^2 = 795.14$; $df = 248$; $p < 0.001$; CFI = 0.93; RMSEA = 0.057

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Table 2 (continued)

Selected Engagement Measures and Results

Study Citation	Engagement Measurement	Sample	Results
May, Gilson, and Harter (2004)	May et al. (2004) scale	Large insurance firm in Midwestern USA; $N = 199$	$\chi^2 = 69.91$, $df = 25$, $p < 0.05$ (revised model, three-factor model across 13-items); $\alpha = 0.77$ (goodness of model fit indices were not included in the publication of the original study)
Saks (2006)	Saks' job and organizational engagement scale	Employees working across variety of jobs and organizations in Toronto, Canada; $N = 102$	Job engagement: PCA supported five-item scale (initially six-item scale); $\alpha = 0.82$ Organizational engagement: PCA supported six-item scale; $\alpha = 0.90$
Rich, LePine, and Crawford (2010)	Job Engagement Scale	Full-time firefighters and their supervisors, from four municipalities; $N = 245$ (did not differentiate results of leaders included in this study)	$\chi^2 = 391.90$, $df = 132$, $p < 0.001$, CFI = 0.97, SRMR = 0.05, RMSEA = 0.09
Soane, Truss, Alfes, Shantz, Rees, and Gatenby (2012)	Intellectual, Social, Affective (ISA) Engagement Scale	Study 1: Manufacturing employees in UK; $N = 278$ Study 2: Retail workers in UK; $N = 835$	Study 1: $\chi^2 = 64$, $df = 24$, $p < 0.001$, CFI = 0.98, GFI = 0.95, SRMR = 0.04, RMSEA = 0.08 Study 2: $\chi^2 = 128$, $df = 24$, $p < 0.001$, CFI = 0.98, GFI = 0.96, SRMR = 0.03, RMSEA = 0.07; $\alpha = 0.88$
Stumpf, Tymon, and van Dam (2013)	Stumpf et al. felt and behavioral engagement scale	Sample of Canadian professionals across 38 different work groups; $N = 341$ (did not differentiate results of leaders included in this study)	Felt engagement: PCA supported five-item scale (initially six-item scale); $\alpha = 0.89$ Behavioral engagement: PCA supported nine-item scale; $\alpha = 0.92$
Schaufeli, Salanova, González-Romá, and Bakker (2002)	UWES (2002)	Spanish university students ($n = 314$); employees from 12 private and public Spanish companies ($n = 619$); total $N = 1,033$	$\chi^2 = 952.66$, $df = 232$, $p \leq 0.001$, RMSEA = 0.05, NFI = 0.87, CFI = 0.90

Note. The engagement measures in this table were reviewed in depth in proceeding section of Chapter 2. Results provided in this table can be assessed based on criteria provided in Chapter 3.

Selection of Employee Engagement Scale

The selection of the Employee Engagement Scale (EES; Shuck et al., 2017) for utilization in the present study was based on two key parameters. First, it was a more recently published engagement measure (published fall 2017). Second, Shuck et al. (2017) described, in depth, the multiple models and steps taken to create and validate the 12-item EES measure grounded in Kahn's (1990) engagement theory. It allowed the author of this study to replicate the steps used, with the expectation to provide empirical support for the use of the EES in future engagement literature. It should be noted that Saks and Gruman's (2014) review of the most widely cited engagement measures purposefully excluded the commercially popular Gallup engagement survey (Harter et al., 2002) because it measures management practices and not engagement. The 12 survey items of the EES, categorized by the item's factor association, can be found in Table 3.

Table 3

Employee Engagement Scale (EES; Shuck et al., 2017)

Items, by factor
Cognitive
1. I am really focused when I am working.
2. I concentrate on my job when I am at work.
3. I give my job responsibility a lot of attention.
4. At work, I am focused on my job.
Emotional
5. Working at my current organization has a great deal of personal meaning to me.
6. I feel a strong sense of belonging to my job.
7. I believe in the mission and purpose of my company.
8. I care about the future of my company.
Behavioral
9. I really push myself to work beyond what is expected of me.
10. I am willing to put in extra effort without being asked.
11. I often go above what is expected of me to help my team be successful.
12. I work harder than expected to help my company be successful.

Note. 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

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Study 1 of EES

Shuck et al. (2017) used a variety of employee samples to perform analysis to determine the final 12-item, three-factor structure of the EES. Study 1 included 283 participants from a variety of industries, including service, manufacturing, professional, and non-profit. Exploratory factor analysis (EFA) was performed on data from this sample ($N = 283$), with the initial version of the EES that included 14 items. Issues were noted with the items associated with the cognitive factor, with an average interim correlation of .30; based on extensive research into the theoretical frame of the construct, Shuck et al. (2017) identified seven new items for the cognitive factor, and tested it in

Study 2 of EES

Study 2 included the newly developed cognitive survey items and the EES tool that now contained 17 items. Health care employees ($N = 241$) were included in this second study and confirmatory factor analysis (CFA) was performed on the data. Based on review of CFA results, Shuck et al. (2017) removed two items from the cognitive factor, with a total of 15 items on the version of the EES that was used to Study 3.

Study 3 of EES

The goal of Study 3 was to reduce the EES from 15 to 12 items, with four items loading onto one of three factors, cognitive, emotional, or behavioral. CFA was once again performed on a sample of 1,067 employees from the financial services field. Internal reliability of each factor (cognitive, emotional, behavioral) was assessed using Cronbach's alpha, with acceptable reliability at $\alpha \geq .70$ (Nunnally, 1978; Peterson, 1994). The following sections detail the establishment of the items for each factor and its associated reliability coefficient following the data analysis of Study 3.

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Cognitive Factor

During the initial development of the EES, Shuck et al. (2017) reported that in Study 1 the initial reliability of the cognitive factor was significantly lower ($\alpha = .63$) than the reliability coefficients reported for the emotional factor ($\alpha = .89$) and the behavioral factor ($\alpha = .92$), based on Shuck et al.'s (2017) selected threshold of $\alpha > .80$ for reliability values, recommended by Clark and Watson (1995). Shuck et al. (2017) noted that the initial weak interitem correlations ($r = .30$) and unacceptable Cronbach's alpha ($\alpha = .63$) within the cognitive factor might be associated with the complexity of measuring the phenomenon of cognition due to the associated challenge of developing questions that are cognitively grounded without the bias of affect (Nimon, Zigarmi, Houson, Witt, & Diehl, 2011). Shuck et al. (2017) had to develop new items for this factor of the EES due to the weak internal consistency reliability and correlation coefficients that came out of the initial development of the scale.

The cognitive factor was further refined through Study 2 and Study 3 conducted by Shuck et al. (2017), resulting in the four-item factor on the present version of the EES. Internal consistency reliability saw vast improvement in the final iteration of the survey at $\alpha = .94$, as compared to the factor's initial reliability of $\alpha = .63$. In addition, the standardized regression weights across the items associated with the cognitive factor ranged from .904 to .963, indicating that the items were 'acceptable' in measuring the cognitive factor based on the recommendation of $> .70$ by Hair, Black, Babin, and Anderson (2010).

Emotional Factor

Unlike the initial results associated with the cognitive factor, the five items

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associated with the emotional factor provided an initial reliability of $\alpha = .89$ and a correlation coefficient of $r = .62$ (Shuck et al., 2017). The emotional factor was further refined through additional studies, resulting in the four-item factor on the present version of the EES. Strong internal consistency reliability remained for the emotional factor in the final iteration of survey at $\alpha = .88$. Furthermore, the standardized regression weights across the emotional factor ranged from .863 to .942 ($> .70$ recommended by Hair et al., 2010).

Behavioral Factor

Likened to the initial results seen in the emotional factor, the five items associated with the behavioral factor provided an initial reliability of $\alpha = .92$ and a correlation coefficient of $r = .72$ (Shuck et al., 2017). The behavioral factor was also further refined through the additional studies conducted by Shuck et al. (2017), providing the four-item factor on the present version of the EES. Strong internal consistency reliability remained for the behavioral factor at $\alpha = .91$ in the final iteration of the measure. In addition, the standardized regression weights across the behavioral factor ranged from .868 to .973 ($> .70$ recommended by Hair et al., 2010).

Conceptual Framework

Kahn's Engagement Research

Kahn's (1990) pre-eminent study of personal engagement and disengagement in the workplace focused on exploring the specific conditions at work by which people engaged and disengaged. Qualitative analysis based on in-depth interviews with two different samples of employees (summer camp, $n = 16$; architectural firm, $n = 16$) brought about the definition of "engagement as the harnessing of organization members'

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selves to their work roles; in engagement, people employ and express themselves physically, cognitively, and emotionally during role performances” (Kahn, 1990, p. 694). From this framework, Kahn (1990) posited that engagement was further grounded in the psychological conditions of meaningfulness, safety, and availability, with availability the most directly related to the three constructs of physical (behavioral), emotional, and cognitive engagement. The three conditions shape how people inhabit their roles and thus drive one’s decision to be engaged or disengaged cognitively, emotionally, and/or physically. Figure 3 visualizes the conceptual framework of Kahn’s (1990) engagement research. Note that the portion of the framework enclosed within the red box was the focus for analysis in the present study.

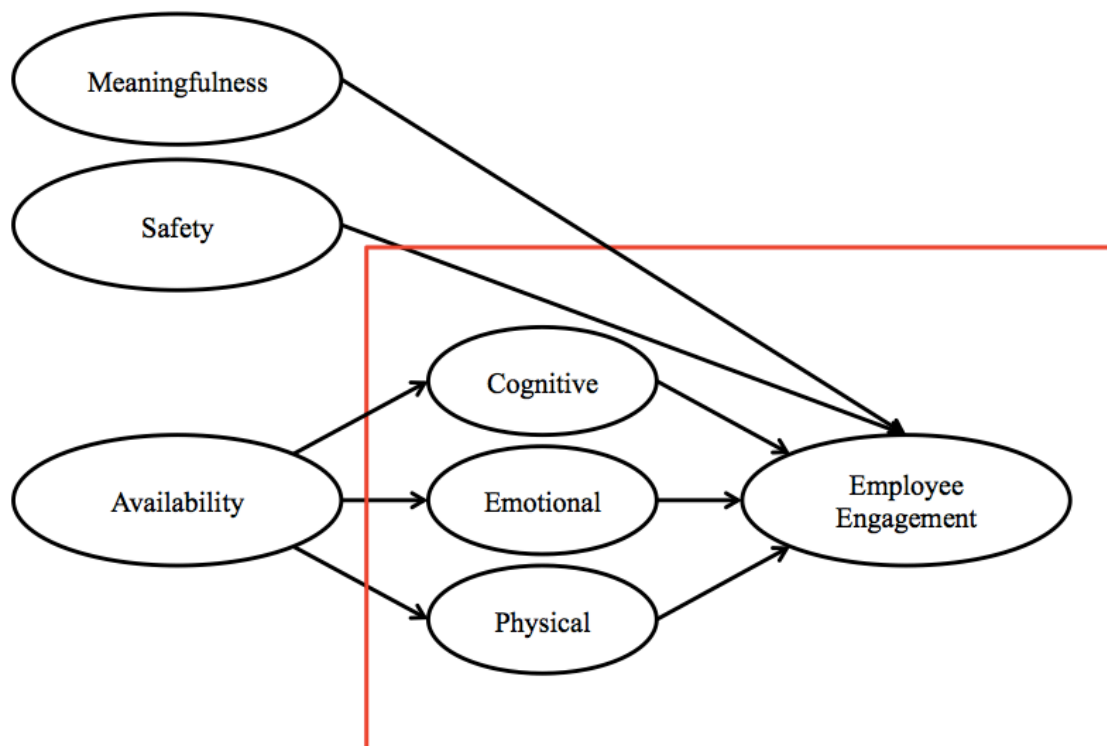


Figure 3. Kahn’s (1990) conceptual model of engagement. The portion of the framework enclosed within the red box was the focus for analysis in the present study.

Cognitive engagement. Kahn (1990) asserted that individuals exhibit engagement through cognitive vigilance, focus, and attention. Building from Kahn’s

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(1990) work, Rich et al. (2010) reviewed the existing engagement literature and defined this sub-dimension of engagement as the intensity of one's mental energy towards positive outcomes within the organization for which he/she works. The level of engagement helps to direct an employee's cognitive energy in both the direction and volume of focus and attention on work-related tasks, experiences, and situations (Shuck et al., 2017).

Emotional engagement. Employees who are engaged are emotionally connected to the work tasks they perform and to those in the service of their work roles (Kahn, 1990). Rich et al. (2010) argued that the emotional energies employees exhibit are synonymous with affective energies; the authors focused on this factor of engagement as representative of one's degree of enthusiasm, happiness, and optimism experienced in the workplace (Bono, Foldes, Vinson, & Muros, 2007). Affective commitment and emotive qualities help to stimulate an employee's willingness to engage in behaviors that work towards desired organizational outcomes, which in turn fulfills the meaningfulness and safety that employees desire (Shuck & Wollard, 2010). Hence, Shuck, Reio, and Rocco (2011) postulated affective commitment as an antecedent of engagement, suggesting that affective commitment influences the development of one's level of engagement within the workplace based on their review of the engagement literature.

Behavioral engagement. Synonymous with physical engagement, behavioral engagement is defined as the psychological state of intention to act in a manner that positively impacts performance, specifically in the work setting (Macey & Schneider, 2008; Rich et al., 2010). Furthermore, since behavioral engagement is the intent to act but not yet an action-related behavior, it is different from other constructs such as

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organizational citizenship behavior (OCB) and performance, as behaviorally engaged employees can see themselves as willing to give more and willing to go above and beyond the specifics of their job role (Macey & Schneider, 2008). Shuck et al. (2017) further emphasized Macey and Schneider's (2008) assertion that behavioral engagement is a psychological state and that it should be evaluated differently than constructs that look at how employees perform or physically manifest behaviors in the workplace (e.g., OCB).

Research Question

This study examined the following research question:

How well do the data collected from leaders replicate the three-factor structure identified in the Employee Engagement Scale (EES) by Shuck, Adelson, and Reio (2017)?

Summary and Implications of Literature Review

A review of the literature has provided evidence that there is a lack of a preferred tool for measuring employee engagement, as well as the gap in the literature related to leader-level engagement. Though the majority of engagement measures are grounded in Kahn's (1990) engagement theory, researchers have been unable to yield consistently, reliable and valid results for the most prolifically cited measures (Saks & Gruman, 2014). Even though few studies have been published providing evidence for the financial impact of leader disengagement on organizations (Adkins, 2015; Robinson, 2010), a gap remains within the literature regarding measuring the impact *leader* engagement may have on organizational outcomes. This study aimed to address both gaps in the literature, specifically assessing if data collected from a sample of leaders could replicate the three-factor structure of the EES identified by Shuck et al. (2017), grounded in Kahn's (1990)

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engagement theory. The following chapter provides an overview of the methods used to address the research question and hypotheses, including the research design, participants, description of the measurement tool, data collection procedure, and plan for data analysis.

CHAPTER 3: METHODS

This chapter described the design of the present study, specifically the selection of second-order confirmatory factor analysis (CFA) to examine the research question and hypotheses. This chapter also offered a review of participants and required sample size, as well as a description of the Employee Engagement Scale (EES; Shuck et al., 2017) that was used to measure for leader engagement, the data collection procedure, and the plan for analyzing the data provided by formal leaders via CFA.

Research Question and Hypotheses

This study examined the following research question:

How well do the data collected from leaders replicate the three-factor structure identified in the Employee Engagement Scale (EES) by Shuck, Adelson, and Reio (2017)?

To provide more precise examination of the research question, the following hypotheses were tested:

H1. Responses to the Employee Engagement Scale (EES) can be explained by three first-order factors (emotional, cognitive, and behavioral) and one second-order factor (engagement).

Null H1. Responses to the Employee Engagement Scale (EES) cannot be explained by three first-order factors (emotional, cognitive, and behavioral) and one second-order factor (engagement).

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H2. Covariance among the three first-order factors is explained fully by their regression on the second-order factor.

Null H2. Covariance among the three first-order factors cannot be explained fully by their regression on the second-order factor.

H3. Data from leaders fits the structure model of the EES.

Null H3. Data from leaders do not fit the structure model of the EES.

Research Design

This study used a quantitative research design. The focus was on whether data from self-identified, formal leaders could replicate the 12-item, three-factor structure of the Employee Engagement Scale (EES; Shuck et al., 2017), grounded in Kahn's (1990) engagement theory. To evaluate the data from leaders in relation to replicating the EES structure, a special case of structural equation modeling (SEM), confirmatory factor analysis (CFA), was chosen as the data analysis tool. CFA provides a confirmatory rather than exploratory approach to data analysis (Byrne, 2010), which was necessary in order to examine the research question and hypotheses in this study related to confirming the structure of the EES with a sample of formal leaders.

The data collected from formal leaders were examined using second-order CFA to offer evidence for the validity of the 12-item EES tool, loading on three-factors (cognitive, emotional, behavioral) in measuring leader engagement as the second-order factor (see Figure 4). Informed by the few studies published by Gallup on leader engagement (Adkins, 2015; Robinson, 2010), this study aspired to provide researchers with a tool to measure *leader* engagement based analysis of CFA results.

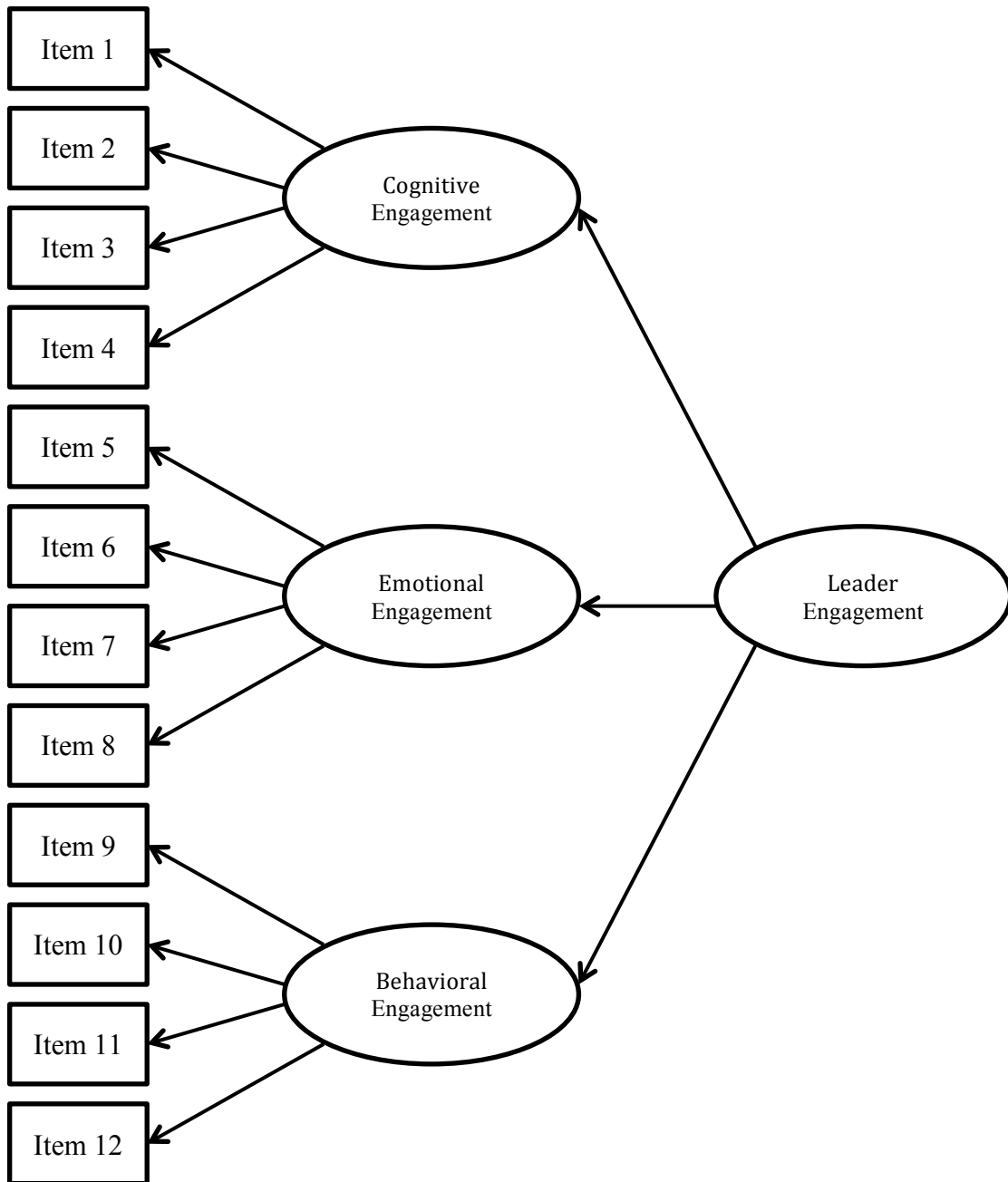


Figure 4. Visualization of the EES to measure for leader engagement.

Participants

The sampling frame for this study included self-identified formal leaders that were recruited via LinkedIn interest groups, International Leadership Association (ILA) discussion board, personal contacts, and the listserv of a mid-sized Midwestern university. To determine the adequate sample size necessary to perform CFA on the data,

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the researcher of the present study followed guidelines from Gagné and Hancock (2006). Based on these guidelines, the minimum sample size for the present study was calculated by reviewing the ESS model, having three well-determined factors (3 parameters), with four items loading on each factor (12 parameters), and each item having an associated error (12 parameters). Thus, the number of model parameters (q) for the EES was 27. Given that the ratio of N to the number of model parameters (q) should be greater than 5, this study had to attain a valid $N = 135$ for adequate sample size (Gagné & Hancock, 2006).

Instrumentation

The EES (Shuck et al., 2017) was utilized to assess employee engagement (see Appendix A). The EES consists of 12 items, equally distributed across the three factors (emotional, behavioral, cognitive) of Kahn's (1990) engagement theory, with an internal consistency reliability of $\alpha = .88$ for emotional engagement, $\alpha = .91$ for behavioral (physical) engagement, and $\alpha = .94$ for cognitive engagement (Shuck et al., 2017). The measure utilizes a 5-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree). Within the survey, the term 'focused' was defined as the direction of attention or efforts, and the term 'expected' was defined as fulfilling the requirements of my work role. Permission to use the measure was provided by the authors in their publication of the scale (Shuck et al., 2017; see Appendix B).

Order of Survey Items

Researchers (Oldendick, 2008; Schuman, Kalton, & Ludwig, 1983) have indicated that, "the order in which questions are asked in a questionnaire can have a significant effect on the results. Preceding questions provide the context in which the

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respondent answers an item, and changing this context can make a large difference in the survey results” (Oldendick, 2008, p. 2). Shuck et al. (2017) grouped the four questions that loaded on the cognitive engagement factor together, followed by the four questions that loaded on emotional engagement factor, and ending with the last four questions in the EES loading on behavioral engagement factor. To address this potential bias of preceding questions informing participant responses, the questions were not grouped by factors in the present study (see Table 4). Note that the previous versions of the visualized model presented in this study (see Figure 4) indicated the order of questions based on the original sequence described by Shuck et al. (2017).

Table 4

Revised Order of Questions Provided to Participants in this Study

Items, by construct	Reordered Item
Cognitive	
1. I am really focused when I am working.	Q1
2. I concentrate on my job when I am at work.	Q4
3. I give my job responsibility a lot of attention.	Q7
4. At work, I am focused on my job.	Q10
Emotional	
5. Working at my current organization has a great deal of personal meaning to me.	Q2
6. I feel a strong sense of belonging to my job.	Q5
7. I believe in the mission and purpose of my company.	Q8
8. I care about the future of my company.	Q11
Behavioral	
9. I really push myself to work beyond what is expected of me.	Q3
10. I am willing to put in extra effort without being asked.	Q6
11. I often go above what is expected of me to help my team be successful.	Q9
12. I work harder than expected to help my company be successful.	Q12

Note. 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Reordered item numbering is associated with the structural models and results in the proceeding chapters.

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Though evidence exists that the order of survey items can impact results (Oldendick, 2008; Schuman et al., 1983), there are no technical procedures for eliminating the effects of question order, such as how specifically to reorder or rearrange the order of questions.

Data Collection

The population of interest for this study was formal leaders within organizations, across all levels of management. The researcher obtained institutional review board (IRB) exempted status for this study in July 2017 (see Appendix C). A statement denoting consent to participant in the study was included on the electronic version of the survey via Qualtrics. Thus, participants indicated their consent to participate in this study by nature of completing the survey.

Data collection occurred in two stages. The first stage included recruitment of participants from the LinkedIn groups' message boards (July through August 2017). Due to very low initial participation via LinkedIn, the second stage of data collection occurred from late July through November 2017, recruiting participants via the International Leadership Association (ILA) discussion board, personal contacts, and the listserv of a mid-sized Midwestern university with a link via the survey software system, Qualtrics. Participants were asked to complete the 12-item EES (see Appendix A).

Targeted sampling method was employed for this research. Initially, only specific LinkedIn interest groups were targeted for inclusion in this study because the persons involved in these groups self-reported to be active leaders interested in leadership networking, research, and data (Watters & Biernacki, 1989). This is a type of nonprobability sampling where members of the target population that meet certain

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practical criteria (Saumure & Given, 2008). In this case, all those targeted self-reported that they met the criteria of having experience in formal leadership positions (supervisors or managers). With that, LinkedIn was chosen as the primary sampling population because “[it] is a platform that connects professionals in various fields and, therefore, provides greater ability to target data collection to an appropriate social network” (Dusek, Yurova, & Ruppel, 2015, p. 282). Though others have found that recruitment through LinkedIn can dramatically increase the potential pool of respondents based on the ease of access to the populations using the social media platform (Dicce & Ewers, 2019), that was not the case in the present study.

Data Analysis

Since the EES measure had strong validity and reliability based on initial reports from Shuck et al. (2017), a special case of structural equation modeling (SEM), confirmatory factor analysis (CFA), was employed in the present study as it takes a confirmatory rather than exploratory approach to data analysis (Byrne, 2010). SEM provided the statistical methodology to confirm the structural theory of the EES (Byrne, 2010). The use of SEM elicits: “(a) that the causal processes under study can be represented by a series of structural (i.e., regression) equations, and (b) that these structural relations can be modeled pictorially to enable a clearer conceptualization of the theory under study” (Byrne, 2010, p. 3). Furthermore, CFA is a technique that “analyzes *a priori* measurement models in which both the number of factors and their correspondence with the indicators are explicitly specified” (Kline, 2011, p. 112).

Shuck et al. (2017) provided a detailed description of how the EES was developed, including its content validity, results of exploratory factor analysis (EFA), and

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the multiple iterations of CFA resulting in a 12-item measure loading on three factors. These descriptive results provided the basis to test against using the EES leader-level engagement model. The structural model for the ESS (see Figure 4) was constructed based on the author of study's interpretation of Shuck et al.'s (2017) work. Since the specification of the factors was already well established by Shuck et al. (2017), only CFA was used in this study to test the EES model with data from a sample of leaders.

Second-order CFA was used to test the hypotheses using IBM SPSS AMOS Version 25 software. First, the factorial structure adapted from Shuck et al.'s (2017) research was run through SPSS AMOS to produce a preliminary model output summary (see Figure 5). Next, the structural model was conducted, producing a goodness-of-fit summary that was evaluated against model fit criterion (indices). Model fit assessment is fully discussed in Chapter 4. The goodness-of-fit summary produced in this study was compared against the statistics provided by Shuck et al. (2017) for the initial validation of the EES.

Model Fit Criteria

Though Barrett (2007) argued that Chi-Square is the only substantive test of fit for SEM, specifically CFA in this study, additional model fit indices were selected for inclusion in the analysis of the data for this study. A decision about overall model goodness-of-fit cannot be made based on a single model fit index. This is due to the complexity of SEM, due to the multiple regressions and associations between the factors and variables that are accounted for in the analysis. Hu and Bentler (1999) suggest including standardized root mean square residual (SRMR), Tucker Lewis Index (TLI), root mean square error of approximation (RMSEA), and Comparative Fit Index (CFI).

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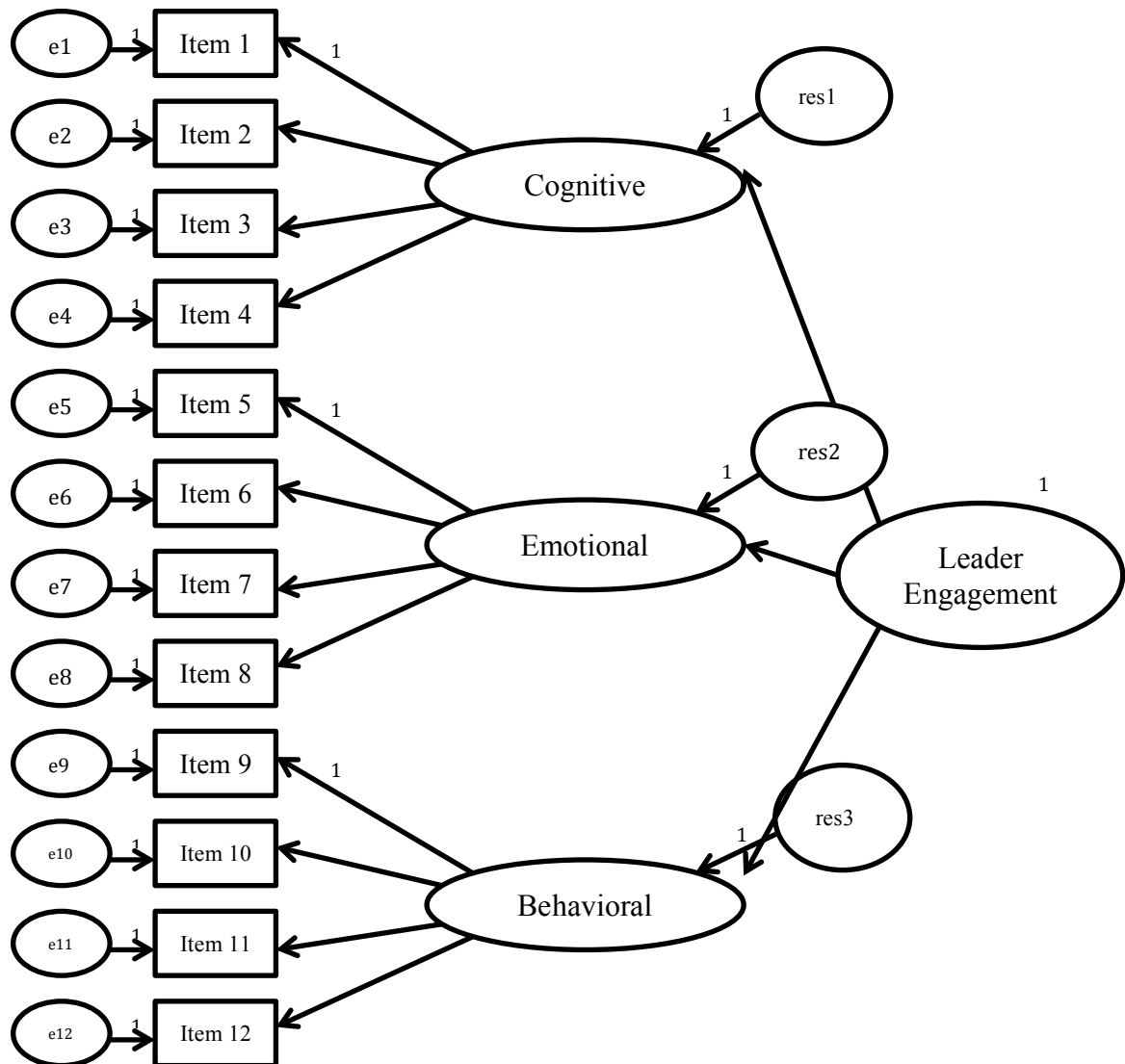


Figure 5. Structural model of the EES measuring for leader engagement.

McDonald and Ho (2002) also suggest reporting Goodness-of-Fit (GFI) and Normed Fit Index (NFI), in addition to CFI and TLI, when analyzing CFA results.

Thus, based on these recommendations, two indices across each classification of fit were included in this study to balance the interpretation of the CFA results. Those specific model fit criteria included were Chi-Square; absolute fit indices, specifically GFI and SRMR; relative fit indices, specifically NFI and TLI; and noncentrality-based indices, specifically RMSEA and CFI (see Table 5). Parsimony fit indices were not

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included in the present study because, as noted by Hooper, Coughlan, and Mullen (2008), no recommended threshold levels for these indices have been published, thus making them more difficult to interpret.

Table 5

Cutoff Criteria Guidelines for Model Fit

Test statistic/ index	Cutoff criteria
df	> 0
χ^2	$\leq df$
p	$> .05$
GFI	$\geq .90$
NFI	$\geq .90$
CFI	$\geq .93$
TLI	$\geq .95$
RMSEA	$\leq .08$
SRMR	$\leq .08$

Note. df = degrees of freedom; χ^2 = chi-square; GFI = Goodness of Fit Index; NFI = Normed Fit Index; CFI = Comparative Fit Index; TLI = Tucker Lewis Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Square Residual

The Chi-Square value (χ^2) is the traditional index for evaluating overall model fit as it “assesses the magnitude of discrepancy between the sample and fitted covariances matrices” (Hu & Bentler, 1999, p. 2). An acceptable model fit would provide an insignificant result at a 0.05 level ($p > .05$; Barrett, 2007), thus the Chi-Square statistic is often referred to as a “badness of fit” (Kline, 2005).

Absolute fit indices (GFI and SRMR) compare the specified model to no model at all (Byrne, 2010; Hu & Bentler, 1995). Higher values for the GFI indicate a better fit, with $\geq .90$ as the ideal cutoff (Hooper et al., 2008). SRMR is based upon the observed and predicted covariances (Kline, 2011), with a value of $\leq .08$ generally considered a good fit (Hu & Bentler, 1999).

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Relative fit indices (NFI and TLI) test the hypothesized model against the null, or independence model, using ratios of the hypothesized model χ^2 and the null χ^2 , taking into account the degrees of freedom for both models (Bentler & Bonett, 1980). Preferred cutoff for NFI is $\geq .90$ (Byrne, 1994) and the cutoff for TLI is $\geq .95$ (Hu & Bentler, 1999).

Noncentrality-based indices (RMSEA and CFI) are based on the assertion that structural modeling is hoping to *not* reject the null hypothesis and instead to reject the alternative hypothesis, thus requires decisions to be made using the noncentral χ^2 distribution (Steiger, Shapiro, & Brown, 1985). RMSEA cutoff of $\leq .08$ is ideal (MacCallum, Browne, & Sugawara, 1996), with $\geq .93$ as the cutoff for CFI (Byrne, 1994).

In addition, standardized regression weights were examined to determine an item's factor loadings, inter-factor associations, and error variances. Hair, Black, Babin, and Anderson (2010) indicated that standardized regression weights greater than .50 are acceptable, with weights greater than .70 to be ideal in assessing factor loadings. Maximum likelihood (ML) estimates were also analyzed to determine the likelihood that the data were drawn from the population (Kline, 2011). Cronbach's alpha was also calculated to determine the reliability coefficients of the three first-order factors (cognitive, emotional, behavioral). The model fit indices, regression weights, and reliability coefficients were analyzed to provide evidence to reject or retain the null hypotheses in this study.

Summary of Methods

Once IRB approval was obtained in July 2017, formal leaders (supervisors or managers) were recruited over a five-month period (July-November 2017) via LinkedIn, International Leadership Association (ILA) discussion board, personal contacts, and the listserv of a mid-sized Midwestern university.

A special case of structural equation modeling (SEM), confirmatory factor analysis (CFA) was employed in the present study as it provided the statistical methodology to confirm the structural theory of the EES. Select model fit indices, regression weights, and reliability coefficients were identified as the standards to determine if the data from a sample of formal leaders could replicate the three-factor structure of the EES. The next chapter will include testing the data for assumptions prior to running CFA. Results of the study will be analyzed to address the research question and hypotheses; specifically based on model fit indices, regression weights, reliability coefficients, and modification indices.

CHAPTER 4: RESULTS

The purpose of this study was to determine if data collected from a sample of leaders could replicate the three-factor structure of the Employee Engagement Scale (EES; Shuck et al., 2017), grounded in Kahn's (1990) engagement theory. To test the hypotheses in this study, a structural model was developed for this study (see Figure 5). This chapter provided analysis of the second-order confirmatory factor analysis (CFA) results to address the research question and hypotheses that guided this study.

Research Question and Hypotheses

This study examined the following research question:

How well do the data collected from leaders replicate the three-factor structure identified in the Employee Engagement Scale (EES) by Shuck, Adelson, and Reio (2017)?

To provide more precise examination of the research question, the following hypotheses were tested:

H1. Responses to the Employee Engagement Scale (EES) can be explained by three first-order factors (emotional, cognitive, and behavioral) and one second-order factor (engagement).

Null H1. Responses to the Employee Engagement Scale (EES) cannot be explained by three first-order factors (emotional, cognitive, and behavioral) and one second-order factor (engagement).

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H2. Covariance among the three first-order factors is explained fully by their regression on the second-order factor.

Null H2. Covariance among the three first-order factors cannot be explained fully by their regression on the second-order factor.

H3. Data from leaders fits the structure model of the EES.

Null H3. Data from leaders do not fit the structure model of the EES.

Table 6

LinkedIn Groups, Sample Distribution

	Count of participants (<i>n</i>)	Percentage of participants (%)	Collection Period
LinkedIn group name			
Linked:HR	2	1.3	July-August 2017
Employee Communications, Engagement, and Experience	1	0.6	
Educational Leadership	1	0.6	
Leadership & Organizational Development	2	1.3	
ILA Women and Leadership Affinity Group (WLAG)	2	1.3	
Leader Campus	2	1.3	
LinkedIn: Dayton	16	10.1	
University listserv	79	49.7	July- November 2017
International Leadership Association (ILA) Discussion Board	29	18.2	July- September 2017
Personal contacts of the researcher	25	15.7	July-August 2017

Note. *N* = 159

Data Collection

Data were collected from participants via LinkedIn groups beginning in July 2017. Due to the very low response rates in the first weeks of data collection (see Table 6), it was determined that additional populations would need to be included in this study in order to reach the sample size minimum of $N = 135$. The listserv of a mid-sized Midwestern university, the International Leadership Association (ILA) discussion board, and personal contact of the researcher were included in the sampling for this dissertation. At the conclusion of the data collection period in November 2017, a total of 159 self-identified leaders had voluntarily completed the EES measure. Based on distribution of the sample of leaders included in this dissertation, nearly 50% of participants were recruited from the university.

Testing for Assumptions

Prior to testing the hypothesized model with confirmatory factor analysis (CFA), the data were screened for the necessary assumptions of sample size, missing data, multivariate outliers, normality, and multicollinearity (Kline, 2011). To test the hypothesized model (see Figure 4) based on the research published by Shuck et al. (2017), a structural model was developed (see Figure 5). This hypothesized structural model was then analyzed using structural equation modeling (SEM) with IBM SPSS AMOS Version 25 software. CFA, a specific application of SEM, was used to investigate the replication of the three-factor structure of the EES (Shuck et al., 2017) with a sample of leaders. The structural model includes a measurement error for each of the items in the EES scale (see Figure 5).

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Participants

The initial sample size of this study was 159 formal leaders. Descriptive statistics were run to review the overall data, including the valid *N* for each survey item, as well as Skewness and kurtosis (see Table 7). To ensure the sample size was sufficient for continuing with this study, communalities were examined. To assess adequacy of sample size, all communalities were acceptable at greater than .60, with survey item 2 (.581) approaching the cutoff threshold of .60 (MacCallum, Widaman, Zhang, & Hong, 1999; see Table 8); indicating that the intended sample size for this study was adequate in identifying the percentage of variance in a given factor (emotional, cognitive, behavioral) explained by all factors together (MacCallum et al., 1999).

Table 7

Descriptive Statistics of the Initial Sample

Survey Item	<i>N</i>	<i>M</i>	S.D.	Skewness	Kurtosis
1	158	4.19	0.815	-1.507	3.648
2	158	3.99	1.006	-1.127	1.036
3	159	4.49	0.778	-2.170	6.394
4	159	4.10	1.008	-1.370	1.613
5	159	4.55	0.727	-2.272	7.147
6	159	4.16	0.725	-1.258	3.830
7	159	4.33	0.807	-1.542	3.281
8	159	4.47	0.701	-1.944	6.599
9	158	4.44	0.802	-2.025	5.483
10	158	4.18	0.730	-1.294	3.866
11	159	4.23	0.980	-1.612	2.690
12	157	4.34	0.822	-1.627	3.745

Note. S.D. = standard deviation

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Table 8

Communalities From a Principal Component Analysis.

Survey Item	Extraction
1	.725
2	.581
3	.807
4	.738
5	.742
6	.829
7	.608
8	.636
9	.786
10	.756
11	.741
12	.798

Missing Data

The initial computation of descriptive statistics through SPSS indicated a total $N = 159$. However, the data in Table 8 indicated that there were cases with missing data. A further review identified that six cases (3.77%) contained missing data. Since the missing data accounted for less than 5% of the sample, which Schafer (1999) deems inconsequential to the analysis, list-wise deletion was performed to remove those six cases. Descriptive statistics were once again run to review the valid sample size across all survey items once those cases with missing items were removed, resulting in a valid list-wise $N = 153$ (see Table 9).

Multivariate Outliers

Using the sample of $N = 153$ cases, Mahalanobis distance was calculated for each case using the 12 variables (EES items) to identify multivariate outliers. A chi-square analysis identified six cases as multivariate outliers, $\chi^2 (12, N = 153) = 32.909, p < .001$, and they were removed from the study (Tabachnick & Fidell, 2013). List-wise deletion of

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the multivariate outliers reduced the sample size to $N = 147$, which still satisfies the minimum required sample size of 135. Following the removal of multivariate outliers, descriptive statistics were run once again through IBM SPSS (see Table 10).

Table 9

Descriptive Statistics of Sample After Removing Missing Data

Survey Item	<i>M</i>	S.D.	Skewness	Kurtosis
1	4.20	0.798	-1.564	4.164
2	4.0	0.987	-1.082	0.954
3	4.48	0.787	-2.138	6.193
4	4.10	1.005	-1.381	1.693
5	4.53	0.735	-2.218	6.851
6	4.16	0.727	-1.292	3.982
7	4.31	0.813	-1.513	3.175
8	4.44	0.706	-1.903	6.435
9	4.45	0.802	-2.083	5.761
10	4.18	0.727	-1.327	4.105
11	4.25	0.948	-1.645	2.973
12	4.35	0.822	-1.658	3.906

Note. $N = 153$; S.D. = standard deviation

Table 10

Descriptive Statistics of Final Sample Excluding Outliers

Survey Item	<i>M</i>	S.D.	Skewness	Kurtosis
1	4.29	0.633	-0.657	1.036
2	4.07	0.869	-0.782	0.063
3	4.54	0.655	-1.700	4.868
4	4.17	0.902	-1.309	1.774
5	4.6	0.569	-1.299	1.967
6	4.21	0.599	-0.308	0.518
7	4.39	0.668	-0.935	0.917
8	4.50	0.578	-0.850	0.962
9	4.52	0.645	-1.307	1.912
10	4.23	0.598	-0.325	0.524
11	4.29	0.884	-1.561	2.913
12	4.41	0.701	-1.266	2.702

Note. $N = 147$; S.D. = standard deviation

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Normality

Normality was evaluated through review of the skewness and kurtosis values reported for the 12 items of the EES once outliers were removed (see Table 10). Gao, Mokhtarian, and Johnston (2008) indicated that absolute values of skewness greater than 1.96 indicate nonnormality. Kline (2005) indicated that the absolute values of kurtosis greater than 7.0 are problematic. Upon review of the descriptive statistics in Table 11, no variables were outside of the limits set for skewness, absolute values ± 1.96 (Gao et al., 2008) or kurtosis, absolute values ± 7.0 (Kline, 2005).

Table 11

Summary of Collinearity Statistics

Survey Item	Tolerance	VIF
1	.447	2.236
2	.415	2.412
3	.507	1.973
4	.396	2.525
5	.559	1.789
6	.403	2.479
7	.461	2.168
8	.463	2.160
9	.332	3.016
10	.301	3.324
11	.384	2.605
12	.298	3.353

Note. $N = 147$

Multicollinearity

The final test for assumptions was performed to determine if any multicollinearity was present among the 12 items of the EES. Multicollinearity is a state of high intercorrelations among the variables; in this case the survey items of the EES. Two multicollinearity statistics were reviewed, tolerance and variance inflation factor (VIF)

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values. Kline (2011) suggested that tolerance values < 0.1 and VIF values > 10.0 indicate that multicollinearity exists. Upon review of the tolerance values and VIF for the data in this study (see Table 11), no issues of multicollinearity were present.

Confirmatory Factor Analysis

Following the cleaning of the data resulting in the final sample size of $N = 147$ for inclusion in this study, confirmatory factor analysis (CFA) via IBM SPSS AMOS Version 25 software was performed on the data. In order to answer the research question and hypotheses, the researcher of the present study had to interpret and recreate the factorial structure of the EES from the original study by Shuck et al. (2017) in order to perform CFA (see Figure 6).

Based on review of Byrne's (2010) procedure for second-order CFA, one item from each of the first-order factors (cognitive, emotional, behavioral) is selected as a marker variable and its loading is fixed to 1. In the present study, the SPSS AMOS software identified Q10, Q11, and Q12 to be fixed at 1 for their respective factors (see Figure 6). Those items fixed to 1 impacted the review of maximum likelihood (ML) estimates in determining the values for the parameters of a model, such to maximize the likelihood that the process described by the model actually fit with the data collected from formal leaders.

Just-Identified Model

Upon review of Byrne's (2010) discussion of 'just-identified' models, which are defined as models with the number of free parameters exactly equal to the number of known values and having zero degrees of freedom, the second-order structure that was initially built in SPSS AMOS was in fact 'just-identified' (see Figure 6). It was necessary

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to correct for ‘just-identification’ as one of the primary aims of SEM “is to specify a model and such that it meets the criterion of overidentification (Byrne, 2010, p. 34)” in order to allow for rejection of the model.

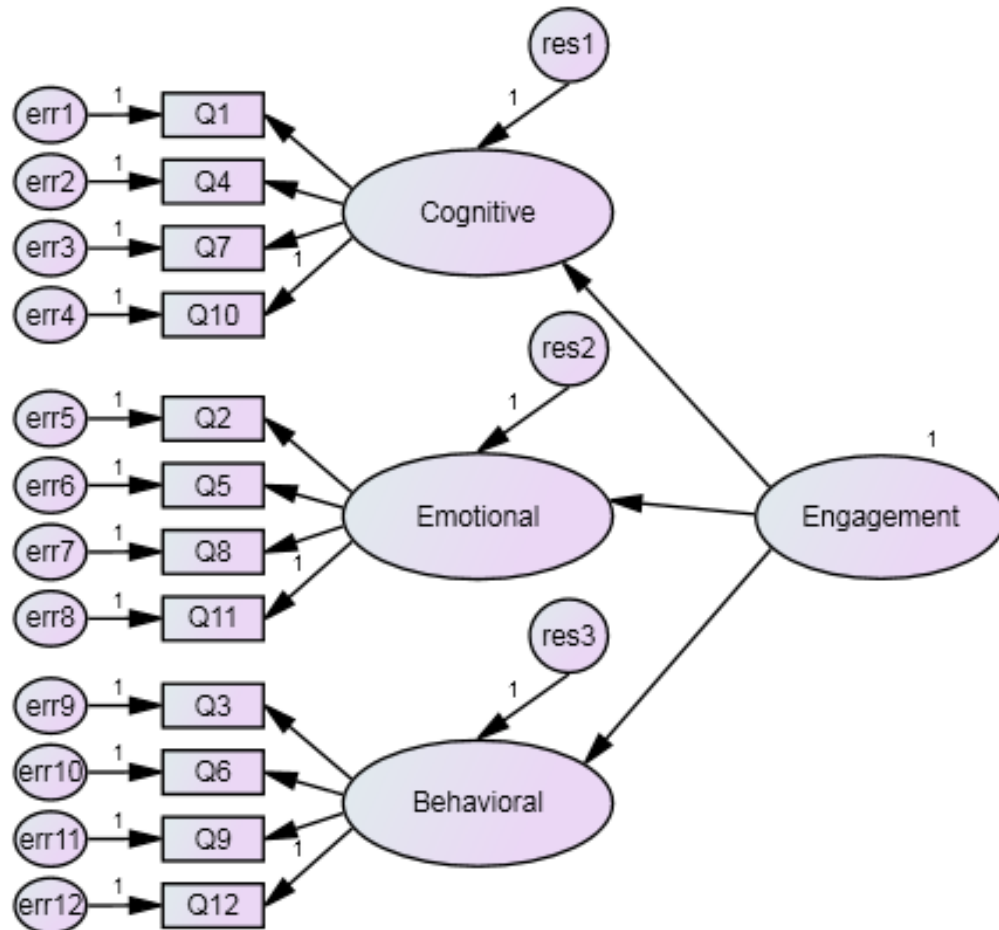


Figure 6. Structural model of the EES to measure for leader engagement, just-identified.

As described by Byrne (2010), “with three first-order factors, we have six $([3 \times 4]/2)$ pieces of information; the number of estimate parameters is also six (three factor loadings; three residuals), thereby resulting in a just-identified model” (p. 132). Thus, the critical ratio difference (CRDIFF) method was utilized to produce “a listing of critical ratios for the pairwise differences among all parameter estimates (p. 133),” specifically seeking out values related to the residuals (Byrne, 2010).

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Table 12

Critical Ratio Differences between Parameters in the Preliminary Model

Variable	Estimate	SE	CR	P	Parameter Label
Engagement	1.000				
res1	.134	.032	4.168	***	par_13
res2	.174	.036	4.799	***	par_14
res3	.077	.051	1.511	.131	par_15
err4	.078	.017	4.547	***	par_16
err3	.225	.028	8.036	***	par_17
err2	.117	.019	6.169	***	par_18
err1	.167	.024	6.997	***	par_19
err8	.122	.023	5.350	***	par_20
err7	.334	.049	6.794	***	par_21
err6	.464	.060	7.750	***	par_22
err5	.270	.046	5.848	***	par_23
err12	.094	.020	4.669	***	par_24
err11	.118	.020	6.053	***	par_25
err10	.135	.019	7.287	***	par_26
err9	.248	.032	7.845	***	par_27

Note. $N = 147$; SE=standard error; CR=critical ratio

*** $p < .001$

Based on review of the critical ratio (CR) differences between parameters (see Table 12), constraints were placed on the first-order constructs of Emotional and Behavioral (as these two factors had differing critical ratio values of 4.799 and 1.511 for their associated residuals, respectively). The constraints were noted by replacing the residuals on the Emotional and Behavioral factors with 'var_a' as seen in Figure 7. By constraining the residuals on both the Emotional and Behavioral factors to be the same, a degrees of freedom value greater than 0 was achieved for the model. With the revised model respecified (see Figure 7) to address the just-identification issue present in the upper level of the original model (see Figure 6), analysis could now be performed via IBM SPSS AMOS Version 25 software to provide model goodness of fit indices.

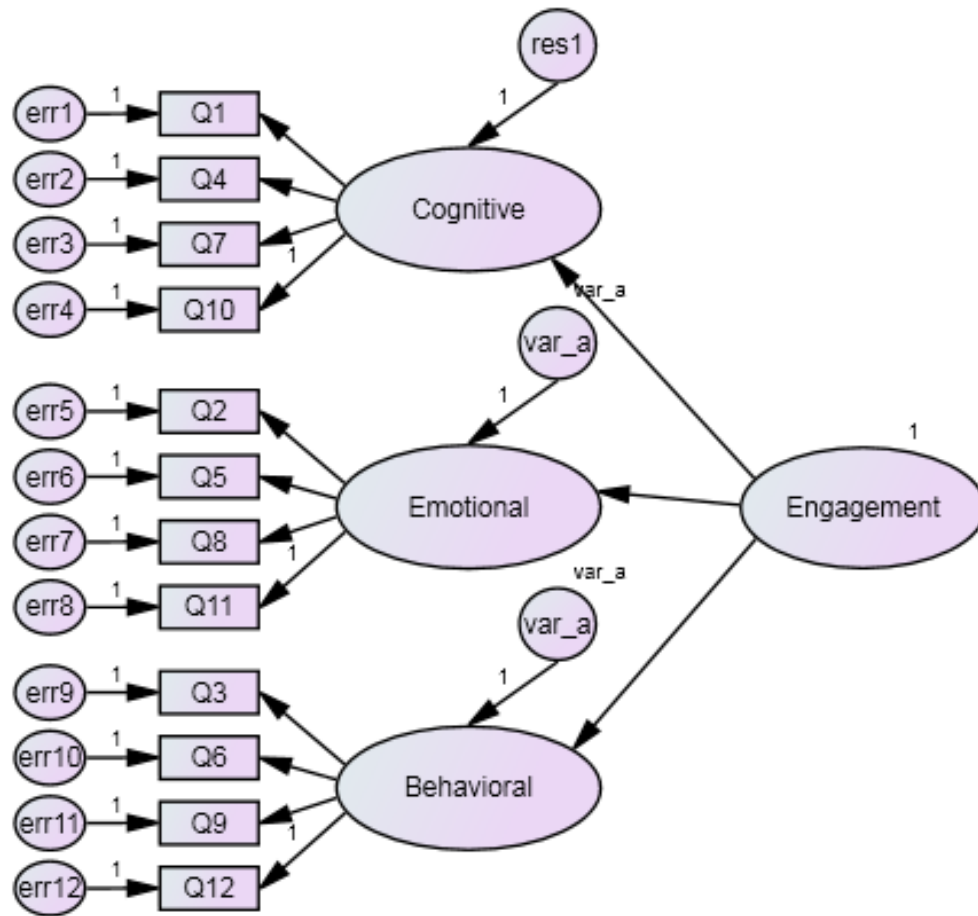


Figure 7. Structural model of the EES to measure for leader engagement, with the residual variances constrained for Emotional and Behavioral factors, indicated by ‘var_a’ labels.

Model Goodness of Fit

The structural, second-order model in Figure 7 with factorial constraints was run through IBM SPSS AMOS Version 25 software. The results of the CFA produced goodness-of-fit indices. The data provided in these outputs was evaluated to determine if the research question and reject the null hypotheses in this study could be addressed.

In order to address the research question and reject the null hypotheses, the following assumptions had to be met:

1. Model goodness-of-fit indices ‘fit’ reputable cutoffs

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2. A comparison of the hypothesized model's goodness-of-fit indices should be comparable to the results produced by Shuck et al. (2017) on the EES

As stated in chapter three, Shuck et al. (2017) produced the following CFA results with a sample of 1,067 employees: $\chi^2 = 459.89$, $df = 51$, $p < 0.001$, CFI = 0.99, TLI = 0.99. It should be noted that CFI and TLI were the only model goodness of fit indices provided in the Shuck et al. (2017) publication. The internal reliability of the three factors of the EES, measured by Cronbach's alpha, was: $\alpha = .94$ for items associated with the Cognitive factor; $\alpha = .88$ for the Emotional factor; and $\alpha = .91$ for the Behavioral factor (Shuck et al., 2017).

Table 13

Summary of Cutoff Criterion and Obtained Statistics Used to Assess Model Fit

Test statistic/ index	Cutoff criteria	Obtained statistic
df	> 0	52
χ^2	$\leq df$	155.594
p	$> .05$.000
GFI	$\geq .90$.846
NFI	$\geq .90$.853
CFI	$\geq .93$.896
TLI	$\geq .95$.867
RMSEA	$\leq .08$.117
SRMR	$\leq .08$.107

Note. $N = 147$; df = degrees of freedom; χ^2 = chi-square; GFI = Goodness of Fit Index; NFI = Normed Fit Index; CFI = Comparative Fit Index; TLI = Tucker Lewis Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Square Residual

Table 13 displays several goodness-of-fit outputs that were produced using IBM SPSS AMOS Version 25 software. It should be noted that one might assume that the degrees of freedom (df) from the original study by Shuck et al. ($df = 51$) and the present study ($df = 52$) should be nearly identical based on the structure of the second-order

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model. As outlined by Byrne (2010), the CRDIFF method was employed to address just-identification of the model and thus increased the df from 51 to 52. Since it appears, based on the df value, that Shuck et al. (2017) did not apply this adjustment to correct for a just-identified model, this should be taken into consideration when comparing the results of the present study with the results presented by Shuck et al. (2017). This is further discussed in chapter 5.

The Cronbach's alphas for the data of 147 formal leaders in this study indicated "acceptable" reliability ($\geq .70$; Nunnally, 1978; Peterson, 1994) for the Cognitive factor ($\alpha = .73$), for the Emotional factor ($\alpha = .78$), as well as for the Behavioral factor ($\alpha = .72$). Though these are deemed "acceptable" based on recommendation by Nunnally (1978), these values are all well below the reliability values that Shuck et al. (2017) computed in their validation study of the EES.

Though null hypothesis 3 was retained due to the interpretation of model goodness-of-fit indices (see Table 13) of the data from leaders, the reliability coefficients that were produced in this study indicated that the items loading onto the three-factor structure were an "acceptable" fit. Thus, evaluation of the reliability coefficients provided evidence to reject null hypothesis 1, in that responses to the EES can be explained by three first-order factors (emotional, cognitive, and behavioral) with a sample of leaders.

Regression Weights

Standardized regression weight estimates were analyzed to address the hypotheses that guided this study (see Table 14). Standardized regression weights can be viewed as factor loadings when interpreting CFA outputs (Yang, 2010). Hair et al. (2010) indicated that "a .50 loading denotes that 25% of the variance is accounted for by that factor. The

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loading must exceed .70 for the factor to account for 50% of the variance of a variable”

(p.114). Furthermore, Kline (2011) also indicates that factor loadings greater than .70 are favorable in interpreting CFA results.

Table 14

Standardized Regression Weights

Variable		Variable	Estimate
Cognitive	<---	Engagement	.753
Emotional	<---	Engagement	.689
Behavioral	<---	Engagement	.813
Q10	<---	Cognitive	.881
Q7	<---	Cognitive	.565
Q4	<---	Cognitive	.820
Q1	<---	Cognitive	.764
Q11	<---	Emotional	.819
Q8	<---	Emotional	.746
Q5	<---	Emotional	.623
Q2	<---	Emotional	.818
Q12	<---	Behavioral	.905
Q9	<---	Behavioral	.853
Q6	<---	Behavioral	.764
Q3	<---	Behavioral	.664

Upon review of Table 14, all of the standardized regression weight estimates (factor loadings) meet the minimum benchmark of .50 loading (Hair et al., 2010), with the majority exceeding .70 loading (Hair et al., 2010; Kline, 2011). A loading value exceeding .70 accounts for 50% of the variance for that survey item (Kline, 2011). The only items that had regression weights less than .70 were Q3, Q5, and Q7. Thus, null hypothesis 1 was rejected, in that the responses to the EES can be explained by the three first-order factors (emotional, cognitive, and behavioral) and one second-order factor

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(engagement). Furthermore, null hypothesis 2 was also rejected, in that the covariance among the three first-order factors (cognitive, emotional, behavioral) was explained fully by their regression (factor loading) on the second-order factor (engagement), as indicated in Table 14.

Modification Indices

A review of the modification indices (MI) for the regression weights (i.e., factor loadings) revealed several parameters suggestive of items cross loading onto additional factors than onto those indicated in the hypothesized model (see Table 15). These misspecifications might indicate that several items (e.g., Q3, Q5, Q7, Q10) measure additional factors than the ones they are associated in the model (see Figure 6). For example, the MI for Q7 and Behavioral factor (MI = 24.134) indicated that survey item Q7 of the EES may fit better on the behavioral factor versus the *a priori* association of Q7 loading on the cognitive factor.

Upon review of Table 14, the items with the lowest standardized regression weights were Q3, Q5, and Q7. When reviewing Table 15 in relation to the modification indices based on these regression weights, it was not surprising to find that these same three items loaded onto additional factors than those they were originally associated. These suggestions for future model improvement will be discussed in chapter 5.

Modifications to the model. Though the CFA results in the present study did not provide irrefutable evidence that the EES can be used to assess engagement among a sample of formal *leaders* based on review of model fit indices, the review of the modification indices (MI) for the regression weights revealed several parameters that cross-loaded onto additional factors than those indicated in the hypothesized model (see

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Table 15). Future researchers may consider rearranging the paths in the model tested in the present study based on the regression weights with larger MI values. In addition, correlations between various survey items (such as Q3 and Q8) should also be considered for assessment of how the model may be improved when analyzing data from formal leaders.

For instance, survey item Q5 may have a better fit if the path was moved from Emotional to Cognitive (MI = 13.181; as indicated in Table 16). These misspecifications might indicate that several items (Q3, Q5, Q7) are associated with additional factors when utilizing a sample of leaders to measure for engagement. For example, the MI between Q7 and Behavioral factor (MI = 24.134) indicated that survey item Q7 of the EES may fit better on the Behavioral factor versus *a prior* association of Q7 loading on the Cognitive factor. Future researchers should consider rearranging several paths based on MI results in Table 16 and then re-running CFA to see if the rearrangement of the paths improves overall model fitness. Due to this dearth in the literature to provide grounded research in what paths to change in the EES when measuring engagement with a sample of *leaders*, it is recommended that future researchers also perform exploratory factor analysis (EFA) on data collected from a sample of leaders to provide statistical evidence to the factor loadings and model specifications that should be employed before the model is conducted with CFA on a sample of leaders.

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Table 15

Modification Indices Based on Regression Weights

Variable		Variable	MI	EPC
Q3	<---	Cognitive	5.767	.207
Q3	<---	Q8	4.090	-.099
Q3	<---	Q4	4.602	.154
Q3	<---	Q10	10.008	.227
Q6	<---	Q8	6.670	.096
Q6	<---	Q11	5.367	.120
Q9	<---	Q7	4.119	.115
Q5	<---	Engagement	5.273	.154
Q5	<---	Cognitive	13.181	.427
Q5	<---	Q1	11.344	.312
Q5	<---	Q4	13.366	.358
Q5	<---	Q10	10.607	.318
Q8	<---	Q3	5.954	-.193
Q7	<---	Engagement	11.462	.157
Q7	<---	Behavioral	24.134	.324
Q7	<---	Emotional	10.857	.278
Q7	<---	Q3	4.065	.122
Q7	<---	Q6	28.789	.380
Q7	<---	Q9	27.788	.325
Q7	<---	Q12	19.321	.251
Q7	<---	Q2	7.523	.124
Q7	<---	Q8	7.698	.128
Q7	<---	Q11	7.546	.176
Q10	<---	Emotional	5.048	-.140
Q10	<---	Q2	5.180	-.076
Q10	<---	Q11	5.755	-.114
Q10	<---	Q7	5.365	-.120

Note. MI = modification indices; EPC = expected parameter change

Model Maximum Likelihood Estimates

Maximum likelihood estimates determine the values for the parameters of a model, maximizing the likelihood that the process described by the model produced the

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data that were actually observed. Based on review of Byrne's (2010) procedure for second-order CFA, one item from each of the first-order factors (cognitive, emotional, behavioral) is selected as a marker variable and its loading is fixed to 1 in order to test the model. In the present study, SPSS AMOS identified Q10, Q11, and Q12 to be fixed at 1 for their respective factor association (see Figure 7).

Table 16

Maximum Likelihood Estimates

Variable		Variable	Estimate	S.E.	C.R.	P
Cognitive	<---	Engagement	.397	.051	7.795	***
Emotional	<---	Engagement	.355	.052	6.864	***
Behavioral	<---	Engagement	.521	.057	9.141	***
Q10	<---	Cognitive	1.000			
Q7	<---	Cognitive	.618	.087	7.142	***
Q4	<---	Cognitive	.927	.080	11.640	***
Q1	<---	Cognitive	.915	.086	10.607	***
Q11	<---	Emotional	1.000			
Q8	<---	Emotional	1.268	.134	9.495	***
Q5	<---	Emotional	1.043	.136	7.649	***
Q2	<---	Emotional	1.416	.135	10.479	***
Q12	<---	Behavioral	1.000			
Q9	<---	Behavioral	.872	.064	13.667	***
Q6	<---	Behavioral	.679	.060	11.408	***
Q3	<---	Behavioral	.692	.075	9.209	***

Note. S.E.=standard error; C.R.=critical ratio

*** $p < .001$

As shown in Table 16, all maximum likelihood (ML) estimates had critical ratio (CR) values > 1.96 , therefore indicating their statistical significance at the .05 level (Byrne, 2010), with survey items Q10, Q11, and Q12 held constant. With all survey items having met the CR cutoff, the results in Table 16 indicate that the observed data from formal leaders can produce the structural model of the EES. Although the modification indices (MI) indicated rearranging the paths, the research question for this study was to

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test the three-factor structure identified by Shuck et al. (2017) for the EES on a sample of leaders. Thus, no changes were made to the structure of the model in the present study (see Figure 7).

Table 17

Comparison of ML and Bayesian Estimates

Variable		Estimation Approach	
		ML	Bayesian
Cognitive	<---	.397	.403
Emotional	<---	.355	.352
Behavioral	<---	.521	.522
Q7	<---	.618	.626
Q4	<---	.927	.934
Q1	<---	.915	.921
Q8	<---	1.268	1.281
Q5	<---	1.043	1.055
Q2	<---	1.416	1.435
Q9	<---	.872	.880
Q6	<---	.679	.685
Q3	<---	.692	.698

Note. ML = maximum likelihood

Bayesian estimation. Upon analysis of the ML estimates provided in Table 17, it was determined that an additional analysis needed to be performed on the data due to the nature of the variables included in the model. Since the EES instrument was comprised of ordinal data (e.g., survey items measured using a 5-point Likert scale), Byrne (2010) suggested performing Bayesian estimation in addition to ML estimation. Based on Bayes' theorem, utilizing Bayesian estimation provides results based on a combination of prior beliefs (e.g., probability distribution of parameters before they were observed) and empirical evidence (Arbuckle, 2007; Bolstad, 2004). The Bayesian estimation was

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applied to the data and the results produced nearly identical outcomes to the ML estimates from the initial CFA run (see Table 17).

The comparability of these results is not surprising, because as Byrne (2010) stated, when the hypothesized model is well specified (which is true for the EES used in this study) and the scaling is based on more than three categories (which is again true for the EES since the scale is a 5-point Likert), it is unlikely there will be significant difference between the ML and Bayesian estimations.

Summary of Results

A sample of 159 formal leaders was analyzed for assumptions prior to conducting second-order CFA. Six cases (3.8% of the total sample) were removed from the analysis due to missing data. Mahalanobis distance was calculated to test for multivariate outliers, resulting in additional six cases to be removed from the study, bringing the valid *N* to 147. Skewness and kurtosis values were reviewed to test for multivariate normality, with no variables outside of the limits. Tolerance and VIF values were analyzed to test for multicollinearity, which indicated no issues with the data.

Based on analysis of standardized regression weights and reliability coefficients, null hypothesis 1 was rejected in that the responses to the EES can be explained by the three first-order factors (emotional, cognitive, and behavioral) and one second-order factor (engagement). Null hypothesis 2 was also rejected in that the covariance among the three first-order factors (cognitive, emotional, behavioral) was fully explained by their factor loadings (regression) on the second-order factor (engagement). Null hypothesis 3 was, however, retained in that data from a sample of leaders did not fit the structural model of the EES based on interpretation of the model fit indices.

CHAPTER 5: DISCUSSION

The purpose of this study was to determine if the structure of the Employee Engagement Scale (EES) could be replicated with a sample of formal leaders (supervisors or managers). Shuck, Adelson, and Reio (2017) verified the EES instrument with 1,067 employees who worked in the financial services industry, however this study aimed at verifying the EES instrument with a sample of *leaders*. While there is an abundance of research on the impact of employee engagement within the workforce (Albrecht, 2010; Saks, 2019; Saks & Gruman, 2014) there is a notable absence in relation to *leader* engagement and how it may influence other organizational outcomes (Welbourne, 2007). Furthermore, due to this gap in the literature focused exclusively on assessing leader-level engagement, it comes as no surprise that no scales exist to specifically measure *leader* engagement. Given this constraint, the researcher of the present study chose to use a validated *employee* engagement measure to determine whether or not *leader* engagement could be assessed with an existing tool.

Research Question and Hypotheses

This study examined the following research question:

How well do the data collected from leaders replicate the three-factor structure identified in the Employee Engagement Scale (EES) by Shuck, Adelson, and Reio (2017)?

To provide more precise examination of the research question, the following hypotheses were tested:

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H1. Responses to the Employee Engagement Scale (EES) can be explained by three first-order factors (emotional, cognitive, and behavioral) and one second-order factor (engagement).

Null H1. Responses to the Employee Engagement Scale (EES) cannot be explained by three first-order factors (emotional, cognitive, and behavioral) and one second-order factor (engagement).

H2. Covariance among the three first-order factors is explained fully by their regression on the second-order factor.

Null H2. Covariance among the three first-order factors cannot be explained fully by their regression on the second-order factor.

H3. Data from leaders fits the structure model of the EES.

Null H3. Data from leaders do not fit the structure model of the EES.

Summary of Results

In the present study, second-order confirmatory factor analysis (CFA) was performed on data from 147 formal leaders to determine if the 12-item, three-factor structure of the EES could be retained with a sample of leaders. Based on analysis of standardized regression weights (see Table 14) and reliability coefficients ($\alpha > .70$), null hypotheses 1 and 2 were rejected in that the data from formal leaders provided evidence that the EES can be explained by the three first-order factors of emotional, cognitive, and behavioral and their loading on the second-order factor of engagement. Yet, based exclusively on interpretation of the model fit indices (see Table 13), null hypothesis 3 was retained, as the data from leaders did not adequately fit the EES's structural model.

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Interpretation of all the CFA results indicated that future researchers should still consider using the EES measure to assess leader-level engagement, as evaluation of CFA results requires consideration of all outputs—from model fit indices to reliability coefficients to regression weights. Upon review of modification indices (MI) in Table 15, there is much to consider for future research in improving the model structure when measuring leader-level engagement.

Discussion

The discussion throughout this chapter will focus on the most significant results as it relates to considerations for future research. The most critical conversation is related to suggested modifications to the EES model structure based on review of modification indices (MI) found in Table 15. These modifications have the implication of making significant improvements to the overall goodness-of-fit of the EES model when analyzing data from a sample of formal leaders. Furthermore, future researchers may consider additional exploratory factor analysis (EFA) and qualitative research methods to isolate the ideal structure and verbiage used in the survey items of the EES when measuring for leader-level engagement.

Modifications to the Model

Since overall results suggested rejection of hypotheses 1 and 2, the structure of the EES could be justified as is, but some specific results as indicated in review of modification indices (MI) raise questions and possibilities that need to be examined. Based on review of the standardized regression weights and the MI values, it is suggested that future researchers consider rearranging paths when using the EES with a sample of leaders.

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In review of both regression weights (see Table 14) and MI values (see Table 15), there are three items from the EES that indicate that path modification would improve model fitness when using the EES to measure leader engagement. The specific items are Q3, Q5, and Q7. Each of these items had a standardized regression weight (factor loading) greater than .70, the cutoff recommended by Kline (2011). Specific considerations for model improvements and future research related to Q3, Q5, and Q7 are as follows.

Suggested model improvement 1. Based on review of the modification indices (MI) presented in Table 15, survey item Q7 needs to be further investigated as to why it loaded on all three factors, including the second-order factor of Engagement. Based on the study by Shuck et al. (2017), Q7 was associated with the Cognitive factor; however, MI values indicate that it could also load on the Behavioral and Emotional factors, with MI values of 24.134 and 10.857 respectively. In addition to these alternate factor loadings, the MI values also indicate that there is an association between Q7 and seven of 12 items in the EES measure. Of those associations, the MI values of the association between Q6, Q9, and Q12 with Q7 supports the assertion, based on the data, that Q7 may load better on the Behavioral factor, as items Q6, Q9, and Q12 are all linked with the Behavioral factor based on the Shuck et al. (2017) study.

Based exclusively on the data results from a sample of formal leaders in the present study, it is suggested to modify the model by moving Q7 from the Cognitive factor to the Behavioral factor. If the data from the current sample of leaders in this study were to be run through CFA after making this suggested modification to the EES model, I would predict that the overall model goodness-of-fit would have a slight improvement,

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based on the expected parameter change (EPC) of .157 in moving Q7 to the Behavioral factor.

Though the data are of great interest in suggesting model improvement, one should also consider the verbiage of the Q7 survey item. This item states, “I give my job responsibility a lot of attention” (Shuck et al., 2017). Future researchers should consider how the word ‘attention’ is defined and operationalized by those completing the EES tool. Does ‘attention’ to one’s job responsibilities truly capture Cognitive engagement in the workplace? Alternatively, does the definition of ‘attention’ associate more appropriately with either Emotional or Behavioral engagement, as indicated by MI values? Furthermore, does ‘attention’ mean something else entirely and should the verbiage in Q7 be altered to better represent the cognitive function that Shuck et al. (2017) were trying to elicit from this survey item? Future research may provide data to answer these questions.

Suggested model improvement 2. Looking once again to the MI values in Table 15, another suggested model improvement would be related to the loadings associated with Q5, which is associated with the Emotional factor based on the initial validation of the EES by Shuck et al. (2017). Based on MI values, survey item Q5 loaded directly on the second-order factor of Engagement and the Cognitive factor, with a MI value of 13.181 for that latter association. Q5 is also associated with items Q1, Q4, and Q10, which all loaded on the Cognitive factor based on the initial validation of the EES by Shuck et al. (2017). Thus, based exclusively on the MI values, it is recommended that following the move of Q7 to the Behavioral factor and analyzing those CFA results, I would then move Q5 to the Cognitive factor and once again run data from the sample of

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leaders in the present study through CFA and interpret the goodness-of-fit results. I would once again predict that there would be overall model improvement of the EES with a sample of leaders based on the expected parameter change (EPC) of .427 found in Table 15.

As with the discussion on the verbiage in Q7, I would also recommend that future researchers consider how participants are operationalizing the question asked in Q5, which states, “I feel a strong sense of belonging to my job” (Shuck et al., 2017). Assuming that the term ‘belonging’ has various meaning and association to those who complete the EES tool, further interpretation of this terminology should be included to improve the model structure of the EES when measuring for leader engagement.

Suggested model improvement 3. Upon review of the MI values in Table 15, the next suggested improvement to the structure of the EES model would be related to Q3, which loads on the Behavioral factor based on the initial validation of the EES by Shuck et al. (2017). Based on MI values, survey item Q3 is suggested to load onto the Cognitive factor with a MI value of 5.767, and is also associated with items Q4 and Q10, both of which are connected to the Cognitive factor of the EES (Shuck et al., 2017). It is suggested that following analysis of the impact of first moving the path associated with Q7 and then moving the path for Q5, the path from survey item Q3 should be moved to the Cognitive factor and CFA should be re-run a third time with the data from the sample of leaders in the current study. I would predict overall model improvement to the EES measuring for leader engagement based on the expected parameter change (EPC) of .207 found in Table 15.

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As with the other suggested model improvements discussed so far, the language used in Q3 should be further analyzed. Survey item Q3 states, “I really push myself to work beyond what is expected of me” (Shuck et al., 2017). But as with Q7 and Q5, how is the statement in this question being operationalized by those completing the EES tool? Might Shuck et al. (2017) have associated Q3 with the Behavioral factor based on the verb ‘push’ in the question. Yet, based on my own assumptions, “pushing one’s self” may be a cognitive function, likened to concentrating and focusing on one’s job duties. The terms ‘concentrate’ and ‘focus’ are both included in three of the EES survey items associated with the Cognitive factor based on the initial validation of the tool by Shuck et al. (2017).

As with the verbiage in Q7 and Q5, the definitions associated with the language used in Q3 would benefit from qualitative research methods. Due to the limitation of quantitative research in that one cannot assume the social construction of the reality in which their participants exist, qualitative methods would allow for focus groups and interviews to be conducted to provide more insight into how participants are operationalizing terms such as ‘attention,’ ‘belonging,’ and ‘push.’ Though improving the EES model step-by-step, starting with rearranging the factorial paths associated with Q7, then Q5, and ultimately Q3, should improve the overall model fit when analyzing data from formal leaders, the inclusion of qualitative methods with future research in this area would be beneficial to developing the body of research related to measuring leader-level engagement.

To provide a visual of the language used in the current version of the EES published by Shuck et al. (2017) and the suggested changes to the factor associations for

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Q3, Q5, and Q7, Table 18 includes the original survey item groupings of the EES, by factor, on the left hand side, with the suggested modifications as discussed in this present study on the right hand side. Note that only those items discussed previously are noted with their survey item number (Q3, Q5, Q7) in Table 18 to provide further clarity on which EES items are suggested to be regrouped based on modification indices (MI).

Table 18

Comparison of the Original EES Survey Item Grouping to the Suggested Change to Survey Item Grouping Based on Modification Indices

Original grouping of survey items	Suggested change to grouping of survey items
Cognitive	
I am really focused when I am working.	I am really focused when I am working.
I concentrate on my job when I am at work.	I concentrate on my job when I am at work.
I give my job responsibility a lot of attention. (Q7)	At work, I am focused on my job.
At work, I am focused on my job.	I feel a strong sense of belonging to my job. (Q5)
	I really push myself to work beyond what is expected of me. (Q3)
Emotional	
Working at my current organization has a great deal of personal meaning to me.	Working at my current organization has a great deal of personal meaning to me.
I feel a strong sense of belonging to my job. (Q5)	I believe in the mission and purpose of my company.
I believe in the mission and purpose of my company.	I care about the future of my company.
I care about the future of my company.	

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Table 18 (continued)

Comparison of the Original EES Survey Item Grouping to the Suggested Change to Survey Item Grouping Based on Modification Indices

Original grouping of survey items	Suggested change to grouping of survey items
Behavioral	
I really push myself to work beyond what is expected of me. (Q3)	I give my job responsibility a lot of attention. (Q7)
I am willing to put in extra effort without being asked.	I am willing to put in extra effort without being asked.
I often go above what is expected of me to help my team be successful.	I often go above what is expected of me to help my team be successful.
I work harder than expected to help my company be successful.	I work harder than expected to help my company be successful.

Note. Only those survey items that suggested to be rearranged based on modification indices (MI) are noted and boldfaced in this table.

In relation specifically to predicted improvements to the model between moving the paths associated with Q7 and Q5, I would predict more significant improvement to the overall model once Q5 is moved to the Cognitive factor in the second iteration of model improvement. This is based exclusively on review of the data in Table 15, specifically the EPC value of .427 related to moving Q5 to the Cognitive factor, whereas the EPC value is only .157 for moving Q7 to Behavioral. Future research will provide data to retain or reject this supposition of how modifications to the model structure will impact overall model fit of the EES analyzing data from formal leaders. Furthermore, future researchers should consider the language used in the EES survey items. The use of ‘attention,’ ‘belonging,’ and ‘push’ need to be further examined to indicate if they are accurately assessing the constructs that they are associated, whether that be one’s cognitive, emotional, or behavioral engagement in the workplace.

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Though the CFA results of this study indicated opportunities for improvement of the model, the more pertinent discussion point in response to the results of this study is why a sample of *leaders* would not be able to replicate the findings by Shuck et al. (2017) when they tested the EES model on a sample of *employees*. Furthermore, might the failure of Shuck et al. (2017) to correct the just-identified model even with a sample of employees have produced inaccurate results, thus perhaps the EES should be revised for use with samples of *both* employees and leaders? Future research assessing the reliability of the EES with a different sample of employees, using the CRDIFF correction, would be of value to the literature on engagement measures and the noted concern of experts in the field on the lack of a valid of a tool to consistently measure engagement (Saks, 2019).

In addition to the suggested changes to the model structure indicated by MI and regression weights to the model, exploratory factor analysis (EFA) should be considered for future studies measuring leader engagement with the EES. Unlike the confirmatory factor analysis (CFA) that was used in the present study to assess if the structure of the EES could be replicated with a sample of leaders, EFA would be used for “consolidating variables and for generating hypotheses about underlying processes” (Tabachnick & Fidell, 2013, p. 614). Though running data from a different sample of leaders through the revised model in Figure 8 is worth consideration, employing EFA on the same data collected from the sample of leaders in the present study would strengthen the argument for how the structure of the EES might be modified when measuring for leader-level engagement. I would predict that running EFA on the data from leaders in the present study would produce a model structure similar to the changes suggested in review of the modification indices (MI) in Table 15, specifically related to moving the path associated

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with Q7 to the Behavioral factor, Q5 to Cognitive factor, and Q3 also to the Cognitive factor. EFA results would be analyzed based on review of eigenvalues to determine with survey items load, or group together, on a particular factor.

Utilizing EFA may also indicate that additional factors exist in the model. Again, since EFA takes an exploratory approach versus confirming an existing structure, as is the case with CFA, future researchers will need to see where the data leads then in identifying if the factorial structure of the EES with a sample of leaders needs to be modified. Furthermore, taking into consideration the specific language used in the various survey items of the EES, future researchers may also consider whether the factor names of Cognitive, Emotional, and Behavioral should be retained or if, based on EFA results, the factors should be renamed to better represent what is occurring in the data.

Measuring Leader Engagement

Though research related to leader-level engagement continues to be missing from the literature, the interest in *employee* engagement and its association with organizational outcomes such as job satisfaction, burnout, and turnover intention continues to gain momentum. In 2017, the Society for Human Resource Management (SHRM) published a report on data from 600 employees that showed a moderately engaged workforce with an average engagement score of 3.9 within the U.S., with 89% indicating satisfaction in their organization (Lee, Esen, & DiNicola, 2017). Yet, even with these ‘high’ levels of engagement and satisfaction, 40% of employees surveyed indicated that they might consider looking for new employment in the next two years. With the consideration for high costs associated with turnover, companies are continually striving to engage their workforce and address reasons that may lead an employee to leave an organization,

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reasons such as compensation to work/life balance to meaningfulness of the work (Lee et al., 2017).

Yet, at the core of this present study, focus on measuring leader engagement is missing from the engagement literature and ultimately how leader engagement may be associated with organizational variables such as job satisfaction, organizational citizenship behavior (OCB), and turnover. Though there is plenty of evidence related to the relationship between employees and their immediate supervisors (e.g., Gerstner & Day, 1997; Harris et al., 2009; Harris et al., 2005; Liden & Maslyn, 1998), there is a notable gap focusing on how engagement might impact those in formal leadership positions. If leaders have high or low levels of cognitive, emotional, and/or behavioral engagement within their organizations, what impact might it have on those they supervise? One might postulate that if a leader has a high level of engagement, it may positively influence their subordinates' perceptions of their own engagement. If that were to be the case, then engagement research should not exclusively focus at assessing engagement only at the employee level, but should consider the impact that leader engagement, and leader disengagement, might have on organizational outcomes.

Another point of consideration is whether leaders identify themselves as employees within their organizational roles. If engagement is specifically related to one's cognitive, emotional, and behavioral energies in an employee role, might formal leaders perceive their work roles as supervisors or managers as different from an employee role? Laing, Phillipson, and Lee (1966) indicated that one's perception informs his or her reality. So, even though the majority of leaders report to a supervisor of their own, given that many CEOs report to a board of directors or the like, do leaders perceive their

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leadership role as disconnected from their role as an *employee* within an organization?

These questions are critical to further investigate in addressing the leader-level gap in the engagement literature.

The scarcity of literature focused on measuring variables at the leader-level is not unique to just organizational consequences such as job satisfaction, organizational citizenship behavior (OCB), and turnover intention. Transformational leadership (TFL; Bass, 1985) has been one of the most prominently researched leadership types (Avolio, Walumbwa, & Weber, 2009; Bass, 1999; Judge & Piccolo, 2004), especially related to its link to increased performance of employees (Bass, 1999; Braun et al., 2013; Dvir, Eden, Avolio, & Shamir, 2002; Farahnak, Ehrhart, Torres, & Aarons, 2019; Hildenbrand, Sacramento, & Binnewies, 2018). Yet, TFL is typically assessed from the point-of-view of the employee (Farahnak et al., 2019); with leaders rarely assessed to measure their own transformational leadership when assessing the relationship between TFL and various organizational outcomes (Lanaj, Johnson, & Lee, 2016). Thus, as previously stated, if “perception is reality” (Laing et al., 1966), might we consider more frequently measuring these *leadership variables* from the perspective of the *leader*?

Though it is of great interest to assess how leader engagement might impact variables such as job satisfaction and turnover intention, we cannot conduct these analyses without first identifying a measure to assess the construct of leader engagement. As already stated, whether future researchers modify the EES based on review of modification indices (MI) to rearrange the paths for items Q3, Q5, and Q7 or use exploratory factor analysis (EPA) to improve the model fit of the EES with data from formal leaders, the focus on leader engagement cannot gain momentum without

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determining the tool that can be used to assess this construct. With the impressive financial cost associated with employee turnover, it is of critical importance that a reliable measure be identified to assess the seemingly forgotten variable of leader engagement.

Limitations

There were several limitations to the present study. The primary limitation of this study was my decision to utilize the critical ratio difference (CRDIFF) method outlined by Byrne (2010) to address just-identification of the model, thus increasing the degrees of freedom (*df*) from 51 to 52 in the model tested in this study. Since it appears that Shuck et al. (2017) did not apply this adjustment to correct for a just-identified model at the upper level (based on their reported *df* value of 51), it is more difficult to compare the results of the present study with those reported by Shuck et al. (2017). Since the primary concern with a just-identified model is that it does not test a particular hypothesis (Kline, 2011), is it critical to correct for just-identification in order to adequately evaluate the model fit of the structure being assessed using confirmatory factor analysis (CFA). Thus, this concern was addressed in the present study and must be taken into consideration when comparing the results with those produced by Shuck et al. (2017).

A secondary limitation of this study was the subgroups of the population from which the valid sample for analysis was collected and its impact on generalizability. Though this was a noted limitation, recruiting participants via LinkedIn, ILA discussion board, personal contacts, and the listserv of a mid-sized Midwestern university, provided access to the population of persons in *formal leadership roles*, which was the most critical criterion for inclusion in this study. Since participants had to self-identify as

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formal leaders (supervisors or managers) to be included in the study, the researcher had no way to verify that the participants actually hold a formal leadership role—further adding to the limitation this poses on the present study and its results.

Data Collection Limitations

The primary data collection limitation of this study was the use of the Employee Engagement Scale (EES) itself, as it was developed and validated with a sample of *employees*. Given that no research exists focused on leader-level engagement, the use of a scale that was established to measure *employee* engagement provides a limitation in the present study, as evidenced in the review of model fit indices. Yet, based on the evaluation of regression weights and reliability coefficients, the EES should not be cast aside for use to measure leader engagement. Review of modification indices (MI) provides guidelines for future research to modify the paths in the model to improve the overall model fit with a sample of leaders.

Common method variance (CMV) bias was an additional data collection limitation to this study. Scholars identify CMV as a potential problem associated with research in the social and behavioral sciences, specifically studies involving self-reports such as questionnaires, surveys, and interviews for their data collection (Richardson, Simmering, & Sturman, 2009). CMV refers to the variance that is attributed to the data collection method rather than to the construct that is theoretically represented by the measures being used (Campbell & Fiske, 1959; Podsakoff et al., 2003). To address the impact of CMV as a limitation to the present study, the researcher ensured the anonymity and confidentiality of the participants by not collecting any identifiable information on participants (such as name, email address). In addition, though it was also listed as a

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limitation of the present study, the researcher counterbalanced the order of the questions by reordering the items from the original survey tool so that items that were associated with the same engagement factor (cognitive, emotional, or behavioral) were not grouped together (Nunnally & Bernstein, 1994; Podsakoff et al., 2003).

Another data collection limitation to this study is related to social desirability bias (Podsakoff, MacKenzie, Jeong-Yeon, & Podsakoff, 2003; Podsakoff, MacKenzie, & Podsakoff, 2012). This bias postulates that participants may not be as truthful in their responses to the survey items as they may strive to be more socially acceptable in how they respond (Podsakoff et al., 2003). Though there is no way to truly eliminate social desirability bias, this study provides evidence for the utilization of an engagement measure, specifically the EES to addressing the gap in the literature related to measuring leader-level engagement. With the rejection of null hypotheses 1 and 2 in this study based on analysis of standardized regression weights (see Chapter Four), future studies should still consider using the EES to measure leader-level engagement—though, with possible modifications to the paths in the model based on review of modification indices (MI).

An additional limitation is related to the information that was not collected for this study. The Shuck et al (2017) study included analysis of 1,067 employees from the financial services industry; yet, the leaders included in this study were not asked to disclose the industry in which they were employed. Based on review of response rates from the various samplings (see Table 6), the researcher can conclude that roughly 50% of those included in this study work within higher education. In relation to the Shuck et al (2017) study, might they have obtained the same reliability results with a sample of

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employees from other industries? Future researchers should consider collecting data related to the industries in which employees and leaders work.

Recommendations and Future Research

More research should be conducted in relation to assessing leader engagement. Though the present research study did not provide irrefutable evidence for the utility of the EES (Shuck et al., 2017) to measure leader-level engagement, it does reinforce the three-factor structure of the EES, grounded in Kahn's (1990) theoretical framework focusing on emotional, cognitive, and behavioral engagement based on analysis of regression weights and reliability coefficients.

Based on review of modification indices (MI) and regression weights, future researchers consider rearranging the paths associated with survey items Q7, Q5, and then Q3. It is recommended that the paths be rearranged in this specific order based on the MI values in Table 15. Survey item Q7 had the highest number of instances for suggested modification based on MI values, followed by Q5 and then Q3. Following each change in the path association (first Q7, then Q5, and then Q3), it is recommended that CFA be re-run to analyze the results and determine if these changes to the paths did indeed improve the fit of data from formal leaders when measuring for leader engagement with the EES.

In addition, exploratory factor analysis (EFA) should also be considered when evaluating an engagement measure to assess leader engagement to analyze how data from a sample of leaders loads onto a varying number of factors. Using the 12-items from the EES, with knowledge of how Shuck et al. (2017) developed the structure of that 3-factor model, one might predict that performing EFA on data from a sample of leaders would indicate a 3-factor model. However, based on the MI values in the present study, I would

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predict that EFA results would indicate a 3-factor model that would mirror the path changes indicated in Table 18 based on the modification indices (MI) obtained in the present study.

In addition to the quantitative methods recommended by rearranging the paths based on MI values and analysis of EFA results, focusing on how leaders and employees are interpreting the verbiage of the EES items might require additional analyses. Since the interpretation of the questions associated with the three factors—cognitive, emotional, and behavioral—seem to be interpreted differently with a sample of leaders than they were with samples of employees based on the results of the present study, it is strongly recommended that qualitative methods be used by future researchers seeking to measure leader-level engagement with the EES. Without additional qualitative research to get at the ‘why’ *leaders* might respond differently to an *employee* engagement measure, specifically the verbiage in the survey items Q3, Q5, and Q7, the question may not be answered.

Future researchers should consider the lack of research on leader engagement in the overall leadership literature when evaluating the impact of leadership variables on organizational outcomes such as employee-level engagement, job satisfaction, OCB, and turnover intention. When taking into consideration that “perspective is reality” for an individual person (Laing et al., 1966), assessing a leader’s own level of engagement, job satisfaction, OCB, and turnover intention from the leader’s own perspective should be of interest. Data gathered directly from leaders on their own levels of engagement, job satisfaction, and turnover intention may help in determining interventions and human resources management (HRM) training programs to improve these organizational

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variables that have an impact on a business' financial bottom line (Kim, Kolb, & Kim, 2013; Schneider et al., 2017; Tarique & Schuler, 2010).

Though LinkedIn seemed to be an ideal target for recruitment of participants for this study, the lack of a personal association with potential recruits hampered its utility. Limited to posting requests to participate in a study such as this one in the LinkedIn groups' discussion boards was not a successful means to reach enough participants to meet the minimum sample size in the present study. Though it may be worthy of use in other research designs depending on the specific groups that are targeted for participation, I did not find this an advisable target population for sampling for this dissertation.

With emergent research on "engagement as management practice" within human resource management (HRM) practices, it is worth noting once again that future researchers would be wise to assess both leader-level and employee-level engagement when determining if there is any difference on organizational outcomes whether one is 'doing engagement' in contrast to merely 'being engaged' (Truss, Alfes, Delbridge, Shantz, & Soane, 2014).

Conclusion

The goal of this study was to bring attention to the absence in the literature related to measuring leader engagement, specifically by examining if the Employee Engagement Scale (EES; Shuck et al., 2017) could be used to assess leader-level engagement. With leader disengagement reportedly costing organizations \$77 to \$96 billion annually due to the influence they have on those they lead (Adkins, 2015), it is of critical importance to the engagement research that a valid instrument to measure leader engagement be

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identified. To provide data to address this gap within the employee engagement research, self-identified leaders were recruited to participate in this study to assess their level of engagement within the workplace, utilizing the Employee Engagement Survey (EES; Shuck et al., 2017), grounded in Kahn's (1990) theoretical framework.

After testing for assumptions and cleaning the data, 147 leaders were included in the second-order confirmatory factor analysis (CFA) to evaluate whether the EES could be used to measure leader engagement. Though the model goodness-of-fit indices did not provide irrefutable evidence that leader engagement could be assessed with the EES, review of regression weights and reliability coefficients did provide evidence for the overall structure of the measure. Modification indices (MI) provided opportunities to improve the EES model for future researchers when measuring for leader-level engagement. Future researchers should consider the suggested model improvements discussed in this study by rearranging the paths associated with several survey items to analyze if the suggested modifications improved the overall fit of the EES model with data from formal leaders.

Though the data analyzed in this study did not provide irrefutable evidence to support the use of the EES tool by Shuck et al. (2017), to measure for leader engagement, this study shed light on the seemingly forgotten variable of *leader engagement* in the literature. Identifying a valid tool to measure leader engagement would allow future researchers to substantiate, or refute, the claim that leader disengagement has a significant financial impact on the bottom line of organizations (Adkins, 2015). While data are nonexistent on the potential impact leader engagement may have on job satisfaction, organizational citizenship behavior, and turnover intention of those they

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lead, the inclusion of assessing *leader engagement* within the literature would benefit academics and practitioners alike to improve human resources training interventions and the financial bottom lines in the organizations that leaders serve.

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APPENDIX A

Employee Engagement Scale (EES; Shuck et al., 2017)

Survey Instructions: Please answer the following by indicating the extent to which you agree or disagree with how the statement describes how you feel about the work environment you are in right now from your perspective as a supervisor/manager.

Within the survey, the following terms will be defined as:

Focused = direction of attention or efforts

Expected = fulfilling the requirements of my work role

1. I am really focused when I am working.
2. I concentrate on my job when I am at work.
3. I give my job responsibility a lot of attention.
4. At work, I am focused on my job.
5. Working at my current organization has a great deal of personal meaning to me.
6. I feel a strong sense of belonging to my job.
7. I believe in the mission and purpose of my company.
8. I care about the future of my company.
9. I really push myself to work beyond what is expected of me.
10. I am willing to put in extra effort without being asked.
11. I often go above what is expected of me to help my team be successful.
12. I work harder than expected to help my company be successful.

5-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree)

APPENDIX B

Permission to use the Employee Engagement Scale (EES)

Authors' Note

The employee engagement scale (EES) and cognitive work appraisal scale-11 (CWAS-11) are permitted for broad use in noncommercial settings, including but not limited to academically focused research to include dissertations and theses and original works of scholarship and grant activity within the limitations of the publication copyright, so long as this work is appropriately and correctly cited. To use either instrument in a commercial or for-profit setting, or for questions regarding permission of use, please contact Brad Shuck at brad.shuck@louisville.edu. An earlier version of this manuscript was presented at the 2015 AHRD International Conference.

Shuck, B., Adelson, J. L., & Reio, T. G. (2017). The Employee Engagement Scale: Initial evidence for construct validity and implications for theory and practice. *Human Resource Management, (56)*6, 953-977. doi:10.1002/hrm.21811

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APPENDIX C

IRB Approval



Office of Research and Sponsored Programs
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WSU IRB STUDY EXEMPTION LETTER

Exemption date: July 13, 2017

Exemption category: 2

PI: Colleen Hayden,
Organizational Studies
Program

IRB #: 06058

Title: Leader engagement matters, too: Addressing the gap in engagement research

The WSU IRB has reviewed and determined that the above project is exempt from IRB review. This review and exemption approval was processed in accordance with federally defined categories of exempt review per 45 CFR 46.101 and WSU IRB policies.

Additional submissions (i.e., continuing review or amendment forms) are not required for exempted studies. However, should your study significantly change, please contact the WSU IRB office prior to initiating those changes to assess whether the study will or will not continue to be exempt.

We appreciate the opportunity to evaluate this research and wish you success with the project.

Sincerely,

The Wright State University IRB